MEDICAL SCHOOL
LIBRARY

SIGILLVM · VNIVERSITATIS · CALIFORNIENSIS
FIAT LVX
MDCCCLXVIII

EX LIBRIS

St. H6

Digitized by the Internet Archive
in 2016

https://archive.org/details/neworleansmedica93unse

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

☆ ☆

VOLUME NINETY-THREE

☆ ☆

JULY, 1940
through
JUNE, 1941

[illegible]

NEW ORLEANS
Medical and Surgical Journal

Established 1844

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio

For one year: Lucien A. LeDoux, M. D.,
Vice-chairman.

H. W. Kostmayer, M. D.

For two years: John A. Lanford, M. D.,*
Secretary.

For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF

John H. Musser, M. D.	*Editor-in-Chief*
Willard R. Wirth, M. D.	*Editor*
Edwin L. Zander, M. D.	*Associate Editor*

COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.

Paul T. Talbot, M. D.	*General Manager*

1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

---

*Died July 2, 1940.

INDEX TO VOLUME NINETY-THREE

July, 1940—June, 1941

—A—

Abortion, indications and contraindications for surgical intervention in treatment of, by Dr. Peter Graffagnino 247
Abscess, amebic, of liver, early diagnosis and treatment of, by Dr. Daniel N. Silverman and Dr. Roy J. St. Martin 90
Albritton, Andrew Stirling—(Joint author), see Leidenheimer, Henry, Jr. 464
Aléman, Ruth—Influenzal meningitis 25
Alexander, L. W.—Use of prostigmin methylsulfate in deafness 474
Alldredge, Rufus H.—Reconstruction operations for fracture of neck of femur with non-union.. 201
Anderson, G. C.—(Joint author), see Haik, George M. 42
    Polyradiculoneuritis, the Guillain-Barré syndrome 443
Aneurysm, extramedullary, of spinal cord, by Dr. Dean H. Echols and Dr. R. G. Holcombe, Jr... 582
    ruptured infraclenoid, by Dr. George M. Haik, Dr. J. D. Magee, and Dr. G. C. Anderson 42
Annual oration, Louisiana State Medical Society, 1940, by Dr. Rudolph Matas 1
Antigens, studies with, V, by M. R. Pabst, Dr. C. H. Boatner, and Dr. B. G. Efron 142
    IX, by Dr. B. G. Efron, Dr. C. H. Boatner, and Dr. Peter Everett 514
    X, by M. R. Pabst, Dr. C. H. Boatner, and Dr. B. G. Efron 579
Antiluetic therapy, ten year survey at Eye, Ear, Nose and Throat Hospital, by Dr. W. E. Kittredge 471
Antituberculosis activities, coordination of, by Dr. Julius L. Wilson 34
Appendicitis, acute, in female, by Dr. Lucien A. LeDoux 86
    mortality of, by Dr. Frederick F. Boyce 300
Arnell, Rupert E.—(Joint author), see Guerriero, William F. 574
    Management of third stage of labor, (Arnell, Guerriero, Phillips) 308
Arthritis, chronic infectious, treatment of, by Dr. Morgan W. Matthews 396
Aschheim-Zondek test, application and interpretation of Friedman modification, by Dr. A. V. Friedrichs 408

—B—

Bagasscosis, a fungus disease of lung, by Dr. S. Chaillé Jamison and Dr. Joe Hopkins 580
Bailey, James Edwin—Rheumatic infection in children in deep south 240
Bass, C. C.—Cause and prevention of loss of teeth 227
Bayley, Robert Hebard—Hypertension as symptom of renal failure 500
Bleeding tendency studies and vitamin K therapy in newborn children, by Dr. Henry Leidenheimer, Jr., and Dr. Andrew Stirling Albritton 464
Blindness, further studies of causes in Louisiana, by Dr. H. F. Brewster 470
Blood dyscrasias, clinical and hematologic studies in, by Dr. Carlo J. Tripoli and Dr. David E. Fader 402
Boatner, C. H.—(Joint author), see Efron, B. G. 514
    see Pabst, M. R. 142, 579
Book reviews 56, 108, 166, 221, 274, 327, 385, 436, 487, 540, 594, 654
Boyce, Frederick F.—Basic therapeutic consideration in diseases of liver 18
    Mortality of acute appendicitis 300
Boyd, David French, a Louisiana educator, by William Dosité Postell 491
Brewster, H. F.—Further studies in causes of blindness in Louisiana 470
Browne, Donovan C.—Gastroscopy in hemorrhage of stomach, (Browne, McHardy) 338
    Management of strychnine poisoning, (Browne, McHardy) 525
    Medical management of cardiospasm, (Browne, McHardy) 627
Buffington, W. R.—Surgical treatment of detachment of retina 495
Burns, Edward L.—Pathology and pathogenesis of pulmonary tuberculosis 131
Bursitis, subacromial, x-ray treatment of, by Dr. Oscar O. Jones 363

—C—

Cancer of skin, early results in treatment by method of Chaoul, by Dr. Stakely Hatchette 509
Carcinoma of pancreas, by Dr. T. P. Lloyd and Dr. W. F. Drummond 223
    primary, of lung, by Dr. Alton Ochsner and Dr. Michael E. DeBakey 387

54278

Cardiospasm, medical management of, by Dr. Donovan C. Browne and Dr. Gordon McHardy ... 627
Cartwright, Samuel A., and states' rights medicine, by Mary Louise Marshall ... 74
Chaoul method, early results in treatment of cancer of skin, by Dr. Stakely Hatchette ... 509
Charity Hospital of Louisiana at New Orleans staff meetings ... 318, 585
Chemotherapy in pneumonia, by Dr. C. P. Herrington ... 348
    in urology, present status of, by Dr. Henry W. E. Walther and Dr. Robert M. Willoughby ... 342
Cohn, Isidore—Reflections on Edmond Souchon ... 550
    Surgery in aged ... 196
Cole, C. Grenes—President's address, Louisiana State Medical Society, 1941 ... 543
Collodion spray in preparation of operative field, by Dr. James T. Nix, Jr. ... 480
Colonna, Paul C.—Treatment of compound fractures ... 570
Connell, John H.—(Joint author), see McFarland, O. W. ... 353
Connely, Edmund—Present status of therapeutic shock in psychiatry ... 357
Coordination of antituberculosis activities, by Dr. Julius L. Wilson ... 34
Cutler, Elliott C.—Rudolph Matas: dean of American surgery ... 61

—D—

Deafness, use of prostigmin methylsulfate in, by Dr. L. W. Alexander ... 474
DeBakey, Michael E.—(Joint author), see Ochsner, Alton ... 387
    Significance of vitamins in surgery (DeBakey, Smith) ... 617
Dermatitis, exfoliative, from sobisminol mass by mouth, by Dr. U. S. Hargrove ... 519
Dial, W. A.—Diagnosis and treatment of sterility ... 413
Diethylstilbestrol and diethylstilbestrol dipropionate in treatment of hyperplasia of prostate, by Dr. Pierre Jorda Kahle and Dr. Emile Maltry ... 121
Discharges of pregnancy, non-bloody vaginal, by Dr. William F. Guerriero and Dr. Rupert E. Arnell ... 574
Drummond, W. F.—(Joint author), see Lloyd, T. P. ... 223
Dupuy, Homer J.—(Joint author), see Weilbaecher, J. O., Jr. ... 455

—E—

Echols, Dean H.—Encephalography and the neuropsychiatrist ... 370
Editorials ... 45, 101, 160, 214, 264, 316, 374, 428, 477, 527, 584, 642
Efron, B. G.—(Joint author), see Pabst, M. R. ... 142, 579
    Studies with antigens, IX, (Efron, Boatner, Everett) ... 514
Emphysema, spontaneous mediastinal, by Dr. Edward Matthews ... 523
Encephalography and the neuropsychiatrist, by Dr. Dean H. Echols ... 370
Engelhardt, Hugo T.—Postparturient infection with probable endocarditis, pulmonary infarction, cerebral embolism and bilateral thrombophlebitis of internal saphenous veins (Engelhardt, LaBarge) ... 520
Esophagus, advanced pathology of, by Dr. J. E. Knighton, Jr. ... 231
Eustachian tube obstruction, acute, by Dr. E. Garland Walls ... 472
Eustis, Allan—Medical treatment of aged ... 193
Everett, Peter—(Joint author), see Efron, B. G. ... 514
Eye, Ear, Nose and Throat Hospital, ten year survey of antiluetic therapy, by Dr. W. E. Kittredge ... 471

—F—

Fader, David E.—(Joint author), see Tripoli, Carlo J. ... 13, 402
Femur, neck, reconstruction operations for fracture with non-union, by Dr. Rufus H. Alldredge 201
Fever, typhus, in Louisiana, by Dr. J. H. Musser ... 39
Foster, M. H.—Problem of prostatism ... 111
Fractures, compound, treatment of, by Dr. Paul C. Colonna ... 570
    of head of radius, by Dr. John T. O'Ferrall ... 367
    of neck of femur with non-union, reconstruction operations for, by Dr. Rufus H. Alldredge ... 201
Frederick, C. O.—Management of chronic prostatitis ... 115
Friedrichs, A. V.—Application and interpretation of Friedman modification of Aschheim-Zondek test ... 408

—G—

Garrett, B. C.—Conservative care of acute pyosalpinx in young women........ 175
Gastroscopy in hemorrhage of stomach, by Dr. Donovan C. Browne and Dr. Gordon McHardy.... 338
Geriatrics, general discussion of problems of old age, by Dr. I. L. Robbins........ 184
    medical treatment of aged, by Dr. Allan Eustis........ 193
    nervous and mental aspects of old age, by Dr. T. A. Watters........ 187
    surgery in aged, by Dr. Isidore Cohn........ 196
Gilmer, P. R.—Surgery in treatment of pulmonary tuberculosis........ 208
Glaucoma, responsibility of general practitioner, by Dr. M. Carl Wilensky........ 254
Graffagnino, Peter—Indications and contraindications for surgical intervention in treatment of abortion........ 247
Gray, Howard K.—Significance and surgical management of ulcerating lesions of stomach........ 331
Guerriero, William F.—(Joint author), see Arnell, Rupert E........ 308
    Non-bloody vaginal discharges of pregnancy (Guerriero, Arnell)........ 574
Guillain-Barré syndrome, polyradiculoneuritis, by Dr. G. C. Anderson........ 443

—H—

Haik, George M.—Ruptured infraclenoid aneurysm (Haik, Magee, Anderson)........ 42
Hargrove, M. D.—Memorial address, Louisiana State Medical Society, 1941........ 605
    U. S.—Exfoliative dermatitis from sobisminol mass by mouth........ 519
Harris, William H.—Etiology and pathogenesis of liver diseases........ 8
Hatchette, Stakely—Early results in treatment of cancer of skin by method of Chaoul........ 509
Heart disease, fallacies in treatment of, by Dr. Paul D. White........ 565
Hemorrhage of stomach, gastroscopy in, by Dr. Donovan C. Browne and Dr. Gordon McHardy.... 338
Herring, J. S.—The elderly primipara........ 177
Herrington, C. P.—Chemotherapy in pneumonia........ 348
Herron, Paul H.—Fatal paralysis following antirabic treatment........ 446
Hopkins, Joe—(Joint author), see Jamison, S. Chaillé........ 580
Hormone, estrogenic, therapy in treatment of presenile and manic depressive psychosis, by Dr. E. M. Robards........ 450
Hospital staff transactions and clinical meetings........47, 102, 266, 318, 376, 480, 529, 585, 645
Howles, James Kirby—(Joint author), see Kennedy, Charles Barrett........ 460
Hunt, Dr. Thomas, by Rudolph M. Landry........ 426
Hypertension as symptom of renal failure, by Dr. Robert Hebard Bayley........ 500

—I—

Ileus, postoperative adynamic, and obstruction of small bowel, treatment with Miller-Abbott tube, by Dr. I. W. Kaplan and Dr. Marshall L. Michel........ 558
Immunization against disease in infants and children, by Dr. H. Aubrey White........ 236
Impotence, testosterone propionate in, by Dr. William A. Reed and Dr. Thomas E. McMillan........ 634
Inaugural address, Louisiana State Medical Society, 1941, by Dr. King Rand........ 601
Infants, premature, some facts about, by Dr. Charles Tarleton Williams........ 244

—J—

Jamison, S. Chaillé—Bagasscosis, a fungus disease of lung, (Jamison, Hopkins)........ 580
Jaundice, classification of, and differential diagnosis of liver disease, by Dr. Carlo J. Tripoli and Dr. David E. Fader........ 13
Jones, Oscar O.—X-ray treatment of subacromial bursitis........ 363
    Philip H., Jr.—Effects of high environmental temperature on human body........ 288

—K—

Kahle, Pierre Jorda—Treatment of hyperplasia of prostate with diethylstilbestrol and diethylstilbestrol dipropionate, (Kahle, Maltry)........ 121
Kaplan, I. W.—Treatment of postoperative adynamic ileus and obstruction of small bowel with Miller-Abbott tube, (Kaplan, Michel)........ 558
Kastler, Arthur O.—Chemistry of vitamins........ 606
Kennedy, Charles Barrett—Treatment of lymphogranuloma inguinale with neoprontosil, (Kennedy, Howles, Smullen, Kopfler)........ 460
Kirklin, B. R.—Plea for wider employment of roentgen rays in examination of lungs........ 277

Kittredge, W. E.—Ten year survey of antiluetic therapy at Eye, Ear, Nose and Throat Hospital 471
Knighton, J. E., Jr.—Advanced pathology of esophagus 231
Kopfler, Marion Elmer—(Joint author), see Kennedy, Charles Barrett........ 460

—L—

LaBarge, O. J.—(Joint author), see Engelhardt, Hugo T. 520
Labor, management of third stage of, by Dr. Rupert E. Arnell, Dr. William F. Guerriero, and Dr. Roland F. Phillips........ 308
Landry, Rudolph M.—Dr. Thomas Hunt........ 426
Laurens, Henry—Regulation of body temperature........ 283
LeDoux, Lucien A.—Acute appendicitis in female........ 86
Leidenheimer, Henry, Jr.—Studies of bleeding tendency and vitamin K therapy in newborn children, (Leidenheimer, Albritton)........ 464
Lesions, ulcerating, of stomach, significance and surgical management of, by Dr. Howard K. Gray 331
Liver, early diagnosis and treatment of amebic abscess of, by Dr. Daniel N. Silverman and Dr. Roy J. St. Martin........ 90
    disease, differential diagnosis, and classification of jaundice, by Dr. Carlo J. Tripoli and Dr. David E. Fader........ 13
        basic therapeutic considerations in, by Dr. Frederick F. Boyce........ 18
        etiology and pathogenesis of, by Dr. William H. Harris........ 8
Lloyd, T. P.—Carcinoma of pancreas, (Lloyd, Drummond) 223
Long, Huey P., charity hospital staff meetings........48, 102
    Wendell—Functional uterine bleeding........ 169
Louisiana, further studies of causes of blindness in, by Dr. H. F. Brewster........ 470
    medical societies prior to War between States, by William Dosité Postell........65, 150
    State Medical Society news........52, 104, 162, 217, 268, 323, 378, 432, 483, 531, 589, 645
        University Medical Center Graduate School of Medicine staff meetings........ 49
    syphilis control in, by Dr. Ford S. Williams 95
    typhus fever in, by Dr. J. H. Musser........ 39
Lung, fungus disease of: bagasscosis, by Dr. S. Chaillé Jamison and Dr. Joe Hopkins........ 580
    primary carcinoma of, by Dr. Alton Ochsner and Dr. Michael E. DeBakey........ 387
Lungs, plea for wider employment of roentgen rays in examination of, by Dr. B. R. Kirklin........ 277
Lymphogranuloma inguinale, treatment with neoprontosil, by Dr. Charles Barrett Kennedy, Dr. James Kirby Howles, Dr. George Smullen, and Dr. Marion Elmer Kopfler........ 460
Lyons, Shirley C.—Medicine as vocation........ 199

—Mc—

McFarland, O. W.—Evaluation of various intravenous medicaments in treatment of shock, (McFarland, Connell) 353
McHardy, Gordon—(Joint author), see Browne, Donovan C. 338, 525, 627
McMillan, Thomas E.—(Joint author), see Reed, William A. 634

—M—

Magee, J. D.—(Joint author), see Haik, George M. 42
Maltry, Emile—(Joint author), see Kahle, Pierre Jorda 121
Marshall, Mary Louise—Samuel A. Cartwright and states' rights medicine........ 74
Matas, Rudolph—Annual oration, Louisiana State Medical Society, 1940........ 1
    dean of American surgery, by Dr. Elliott C. Cutler........ 61
Matthews, Edward—Spontaneous mediastinal emphysema 523
    Morgan W.—Treatment of chronic infectious arthritis 396
Mayoral, A.—Roentgenologic appearance of developmental changes of skeleton........ 250
Medicine as vocation, by Dr. Shirley C. Lyons........ 199
Memorial address, Louisiana State Medical Society, 1941, by Dr. M. D. Hargrove........ 605
Meningitis, acute aseptic, by Dr. Joseph G. Pasternack 78
    influenzal, by Dr. Ruth Aléman........ 25
    pneumococcic, complicated by pulmonary tuberculosis, sulfapyridine therapy with recovery, by Dr. Suzanne Schaefer........ 83
Mental disease, progress in treatment of, by Dr. Frederick P. Moersch........ 439
Mercy Hospital staff meetings........ 266, 529, 587

Michel, Marshall L.—(Joint author), see Kaplan, I. W. 558
Miller, Morell W.—Early diagnosis of pulmonary tuberculosis 139
    Abbott tube, treatment of postoperative adynamic ileus and obstruction of small bowel with, by Dr. I. W. Kaplan and Dr. Marshall L. Michel 558
Moersch, Frederick P.—Progress in treatment of mental disease 439
Moss, Emma S.—Fulminating meningococcal septicemia with bilateral suprarenal hemorrhage, (Moss, Schenken) 294
Musser, J. H.—Typhus fever in Louisiana 39

—N—

Nadler, Samuel B.—Medical aspects of vitamin therapy 611
Naef, Emile—Early diagnosis of pulmonary tuberculosis from standpoint of pediatrician 136
Nelson, Erwin E.—Sulfanilamide and sulfapyridine 516
Neoprontosil, in treatment of lymphogranuloma inguinale, by Dr. Charles Barrett Kennedy, Dr. James K. Howles, Dr. George Smullen, and Dr. Marion E. Kopfler 460
Newborn children, studies of bleeding tendency and vitamin K therapy in, by Dr. Henry Leidenheimer, Jr., and Dr. Andrew Stirling Albritton 464
Nix, J. T., clinic staff meetings 480
    James T., Jr.—Collodion spray in preparation of operative field 480

—O—

Obstruction, acute eustachian tube, by Dr. E. Garland Walls 472
    of small bowel and postoperative adynamic ileus, treatment with Miller-Abbott tube, by Dr. I. W. Kaplan and Dr. Marshall L. Michel 558
Ochsner, Alton—Primary carcinoma of lung, (Ochsner, DeBakey) 387
O'Ferrall, John T.—Fractures of head of radius 367
Operative field, collodion spray in preparation of, by Dr. James T. Nix, Jr. 480
Orleans Parish Medical Society transactions 49, 103, 216, 267, 321, 430, 481, 530, 587
Otitis media, chronic suppurative, management of, by Dr. J. Ralph Phillips 93

—P—

Pabst, M. R.—Studies with antigens, V, (Pabst, Boatner, Efron) 142
    Studies with antigens, X, (Pabst, Boatner, Efron) 579
Pancreas, carcinoma of, by Dr. T. P. Lloyd and Dr. W. F. Drummond 223
Paralysis, fatal, following antirabic treatment, by Dr. Paul H. Herron 446
Pasternack, Joseph G.—Acute aseptic meningitis 78
Peritonitis, use of sulfanilamide in, by Dr. Marshall L. Michel 419
Phillips, J. Ralph—Management of chronic suppurative otitis media 93
    Roland F.—(Joint author), see Arnell, Rupert E. 308
Pneumonia, chemotherapy in, by Dr. C. P. Herrington 348
Polyradiculoneuritis, the Guillain-Barré syndrome, by Dr. G. C. Anderson 443
Postell, William Dosité—David French Boyd, a Louisiana educator 491
    Medical societies of Louisiana prior to War between States 65, 150
Postparturient infection with probable endocarditis, pulmonary infarction, cerebral embolism, and bilateral thrombophlebitis of internal saphenous veins, by Dr. Hugo T. Engelhardt and Dr. O. J. LaBarge 520
Pregnancy, non-bloody vaginal discharges of, by Dr. William F. Guerriero and Dr. Rupert E. Arnell 574
President's address, Louisiana State Medical Society, 1941, by Dr. C. Grenes Cole 543
Primipara, elderly, by Dr. J. S. Herring 177
Prostate, hyperplasia of, treatment with diethylstilbestrol and diethylstilbestrol dipropionate, by Dr. Pierre Jorda Kahle and Dr. Emile Maltry 121
Prostatism, problem of, by Dr. M. H. Foster 111
Prostatitis, chronic, management of, by Dr. C. O. Frederick 115
Prostigmin methylsulfate, use in deafness, by Dr. L. W. Alexander 474
Psychosis, presenile and manic depressive, treatment by estrogenic hormone therapy, by Dr. E. M. Robards 450
Public health administration, by Dr. W. K. Sharp, Jr. 504
Purpura hemorrhagica, and splenectomy, by Dr. Milton Finn 259
Pyosalpinx, acute, conservative care in young women, by Dr. B. C. Garrett 175

—R—

- Radius, fractures of head of, by Dr. John T. O'Ferrall 367
- Rand, King—Inaugural address, Louisiana State Medical Society, 1941 601
- Reconstruction operations for fractures of neck of femur with non-union, by Dr. Rufus H. Alldredge 201
- Reed, William A.—Testosterone propionate in impotence, (Reed, McMillan) 634
- Renal failure, hypertension as symptom of, by Dr. Robert Hebard Bayley 500
- Retina, surgical treatment of detachment of, by Dr. W. R. Buffington 495
- Rheumatic infection in children in deep south, by Dr. James Edwin Bailey 240
- Robards, E. M.—Estrogenic hormone therapy in treatment of presenile and manic depressive psychosis 450
- Robbins, I. L.—General discussion of problems of old age 184
- Roentgenologic appearance of developmental changes of skeleton, by Dr. A. Mayoral 250
- Roentgen rays, plea for wider employment in examination of lungs, by Dr. B. R. Kirklin 277

—S—

- Sarcoma of uterus, by Dr. Joseph Ziskind and Dr. Herbert J. Schattenberg 637
- Schaefer, Suzanne—Sulfapyridine therapy in pneumococcic meningitis complicated by pulmonary tuberculosis with recovery 83
- Schattenberg, Herbert J.—(Joint author), see Ziskind, Joseph 637
- Schenken, John R.—(Joint author), see Moss, Emma S. 294
- Schlosser, Joseph V.—Warren Stone 281
- Septicemia, fulminating meningococcal, with bilateral suprarenal hemorrhage, by Dr. Emma S. Moss and Dr. John R. Schenken 294
- Sharp, W. K., Jr.—Public health administration 504
- Shock, evaluation of various intravenous medicaments in treatment of, by Dr. O. W. McFarland and Dr. John H. Connell 353
  - therapeutic, present status in psychiatry, by Dr. Edmund Connely 357
- Silverman, Daniel N.—Early diagnosis and treatment of amebic abscess of liver, (Silverman, St. Martin) 90
- Skeleton, roentgenologic appearance of developmental changes of, by Dr. A. Mayoral 250
- Skin, early results in treatment of cancer of, by method of Chaoul, by Dr. Stakely Hatchette 509
- Smith, Marvin C.—(Joint author), see DeBakey, Michael E. 617
- Smullen, George—(Joint author), see Kennedy, Charles Barrett 460
- Sobisminol mass by mouth as cause of exfoliative dermatitis, by Dr. U. S. Hargrove 519
- Souchon, Edmond, reflections on, by Dr. Isidore Cohn 550
- Southern Baptist Hospital staff meetings 266, 318, 530, 587, 645
- Spinal cord, extramedullary aneurysm of, by Dr. Dean H. Echols and Dr. R. G. Holcombe, Jr. 582
- Splenectomy and purpura hemorrhagica, by Dr. Milton Finn 259
- Stomach, gastroscopy in hemorrhage of, by Dr. Donovan C. Browne and Dr. Gordon McHardy 338
  - significance and surgical management of ulcerating lesions of, by Dr. Howard K. Gray 331
- Stone, Warren, by Joseph V. Schlosser 281
- Strychnine poisoning, management of, by Dr. Donovan C. Browne and Dr. Gordon McHardy 525
- Sterility, diagnosis and treatment of, by Dr. W. A. Dial 413
- St. Martin, Roy J.—(Joint author), see Silverman, Daniel N. 90
- Sulfanilamide and sulfapyridine, by Dr. Erwin E. Nelson 516
  - use in peritonitis, by Dr. Marshall L. Michel 419
- Sulfapyridine and sulfanilamide, by Dr. Erwin E. Nelson 516
  - therapy in pneumococcic meningitis complicated by pulmonary tuberculosis with recovery, by Dr. Suzanne Schaefer 83
- Sulfonamide drugs, use in certain bacterial infections, by Dr. J. O. Weilbaecher, Jr., Dr. Homer J. Dupuy, and Dr. H. M. Taylor 455
- Surgery in treatment of pulmonary tuberculosis, by Dr. P. R. Gilmer 208
- Syphilis control in Louisiana, by Dr. Ford S. Williams 95

—T—

- Taylor, H. M.—(Joint author), see Weilbaecher, J. O., Jr. 455
- Teeth, cause and prevention of loss of, by Dr. C. C. Bass 227
- Temperature, effects of high environmental temperature on human body, by Dr. Philip H. Jones, Jr. 288

regulation of body, by Dr. Henry Laurens 283
Testosterone propionate in impotence, by Dr. William A. Reed and Dr. Thomas E. McMillan 634
Touro Infirmary staff meetings 376, 480, 530, 587, 645
Tripoli, Carlo J.—Clinical and hematologic studies in some blood dyscrasias, (Tripoli, Fader) 402
Differential diagnosis of liver disease and classification of jaundice, (Tripoli, Fader) 13
Tri-state Hospital, Inc., staff meetings 47
Tuberculosis, pulmonary, early diagnosis from standpoint of pediatrician, by Dr. Emile Naef 136
early diagnosis of, by Dr. Morell W. Miller 139
pathology and pathogenesis of, by Dr. Edward L. Burns 131
surgery in treatment of, by Dr. P. R. Gilmer 208

—U—

Urology, present status of chemotherapy in, by Dr. Henry W. E. Walther and Dr. Robert M. Willoughby 342
Uterine bleeding, functional, by Dr. Wendell Long 169
Uterus, sarcoma of, by Dr. Joseph Ziskind and Dr. Herbert J. Schattenberg 637

—V—

Vitamin K therapy and studies of bleeding tendency in newborn children, by Dr. Henry Leidenheimer, Jr., and Dr. Andrew Stirling Albritton 464
therapy, medical aspects of, by Dr. Samuel B. Nadler 611
Vitamins, chemistry of, by Dr. Arthur O. Kastler 606
in surgery, significance of, by Dr. Michael E. DeBakey and Dr. Marvin C. Smith 617

—W—

Walls, E. Garland—Acute eustachian tube obstruction 472
Walther, Henry W. E.—Present status of chemotherapy in urology, (Walther, Willoughby) 342
Watters, T. A.—Nervous and mental aspects of old age 187
Weilbaecher, J. O., Jr.—Use of sulfonamide drugs in certain bacterial infections, (Weilbaecher, Dupuy, Taylor) 455
White, H. Aubrey—Immunization against disease in infants and children 236
Paul D.—Fallacies in treatment of disease 565
Wilensky, M. Carl—Glaucoma, responsibility of general practitioner 254
Williams, Charles Tarleton—Some facts about premature infants 244
Ford S.—Syphilis control in Louisiana 95
Willoughby, Robert M.—(Joint author), see Walther, Henry W. E. 342
Wilson, Julius L.—Coordination of antituberculosis activities 34
Woman's Auxiliary, Louisiana State Medical Society 55, 107, 165, 220, 274, 326, 383, 435, 486, 538, 591

—X—

X-ray treatment of subacromial bursitis, by Dr. Oscar O. Jones 363

—Z—

Ziskind, Joseph—Sarcoma of uterus, (Ziskind, Schattenberg) 637

New Orleans Medical
and
Surgical Journal

Vol. 93 JULY, 1940 No. 1

SIXTY YEARS OF SERVICE AND PROGRESS IN THE LOUISIANA STATE MEDICAL SOCIETY*

RUDOLPH MATAS, M. D.
NEW ORLEANS

INTRODUCTORY OBSERVATIONS ON TRANSITION FROM PAST TO PRESENT

The generous terms with which the Louisiana State Medical Society has chosen to dedicate its sixty-first annual meeting to the commemoration of the sixtieth anniversary of my medical career, affects me deeply in grateful appreciation of an honor so signally and graciously conferred. I particularly prize this dedication, because as is told in the citation, the birth and history of this Society coincides so closely with the chronology of my own professional life that the two may be regarded as virtually contemporaneous. My medical life began with my graduation in medicine in April, 1880, sixty years this April. Our mother society was born a year before, in 1879, sixty-one years ago. Though not a graduate of medicine and not a member of our then nascent organization, I was one of several interns of the Charity Hospital who were privileged to attend its birth. I am also one of the few who have survived the strong buffettings of fate and the stormy seas over which our good ship has sailed during the six decades that we have travelled together; and in justice to my loyalty, be it said, without losing faith at any time in her seaworthiness or doubting that she would reach a safe anchorage in the home port of her assured prosperity. I have been reminded by your historic dedication that I was at one time your captain, trusted with the steering wheel in 1895, and piloted her fourteenth annual cruise without mishap. It is also recorded that we finally landed in port with a cargo profitable enough in knowledge to encourage our stockholder members to continue their investment in our corporation, the Louisiana State Medical Society.

The memories of the year in which I served the Society as its executive officer are as vivid now as they were then, and the graciousness of your favor and the aid received from my associates and fellows in the accomplishment of my presidential tasks, remain indelible and linger as a precious perfume, fresh and fragrant to animate me on this occasion.

It would appear from the evidence of the calendar that I had already survived twenty hot summers before the Society was born. I am therefore enjoying the privilege of a seniority of twenty years over and above our foundation, that permits me to visualize the long distance we have travelled since we began the great trek which has brought us here today, to enjoy together the thrill of accomplishment such as that given to the hardy pioneer who, after sixty years of arduous toil, finds himself in the land of promise and of plenty.

It is indeed a significant fact in evidence of the extraordinary pace of modern scientific accomplishment, and of the speed attained by contemporary medicine, that in the course of these six decades that we have travelled together, the whole of our Art and Science has been revised and revolutionized; our methods of practice have radically changed, even to the language that we speak, which would have been incomprehensible to our members in 1879, were they here to join in the scientific jargon of our debates. Indeed, what a prodigious distance we have travelled in the six decades that intervene between 1879-1940! Only the few who have participated in the medical life of this period,—the most prolific in scientific discovery and momentous in the history of the medical world in general, and of American medicine in particular,—can realize the immensity of these sixty years in units of discovery and achievement.

---

*Address delivered at the sixty-first anniversary of the Louisiana State Medical Society, on April 23, 1940.

Medicine, profiting by the world energies that have been set in motion by the revelations of the physical, chemical and biologic sciences of the twentieth century, has travelled with a vertiginous pace which, when contrasted with the past, can only be conceived by comparing the speed of the old doctor's horse and buggy with that of the automobile and the aeroplane. In this flight over the years, we who have lived in this Southern section of the country, have witnessed a succession of changes in medical thought and practice which to the practitioner of even thirty years ago would seem no less than a mirage such as that which startles the fevered brain of the lost wanderer in a tractless desert where he sees sparkling streams and umbrageous trees under which to rest and quaff his parched throat.

Just think what these sixty years have done for this organization—the Louisiana State Medical Society! A mere glance at the annual volume of transactions, as they appear in the New Orleans Medical and Surgical Journal, our official organ, will show how its constitution and administration have changed and are changing, to meet the requirements of an ever expanding, progressive and representative medical democracy. The present meeting attests not only to the great expansion of the organization, but also to the restless agitation prevailing in the profession in anticipation of greater changes in the present system of medical relief required to provide and make available the most effective methods of medical and surgical care equally to all classes of the population, and particularly to the so-called underprivileged or low income groups.

It is also evident that at no time has the general public displayed greater interest and sympathy in the socio-economic as well as scientific problems that are now engaging our attention.

Again, it is a significant fact in evidence of the extraordinary pace of modern scientific accomplishment and the great speed attained by contemporary medicine that whole new departments of knowledge should have been planted, matured and fructified in phenomenal luxuriance, all within the space of a man's life time.*

*Such departments as roentgenology, radiology and Curie-therapy, local and regional anesthesia, inhalation anesthesia, intravenous anesthesia, neurosurgery, chemo-hemotherapy, endocrinology, gastroscopy, and innumerable other innovations in surgery, sanitation and the specialties too long to mention, which I had occasion to review with special reference to Louisiana before this society in an address on Medical Progress (1895-1926) at the Monroe annual meeting, in April, 1926.[1]

And to have witnessed this magical transition from the old to the new, is the privilege that my robust longevity has given me to enjoy. While I by no means claim that this privilege of age is unique or a particular qualification for your favor, I am, none the less happy that I am here to rejoice with you in the progress accomplished and to revive memories of an early professional life, when, with all the vigor and enthusiasm of youth, I sought new ways and new means by which to expand the sphere of the doctor's usefulness in his endless campaign for the suppression of pain and the cure of disease. It is indeed a great privilege to have participated and lived through the formative period of new arts and benificent scientific discoveries, and still preserve sufficient vision to look on the far distant past from the summit of the height attained and gaze from this vantage point, at still greater peaks beyond, that remain unscaled, and still waiting for younger and more venturesome pioneers!

---

[1] New Orleans M. &. S. J., 79:5, 1926.

REMINISCENCES OF 1895 AND THE SPEAKER'S PRESIDENCY

The dedication of the sixty-first meeting of the Louisiana State Medical Society, evidently written by a thoughtful friend who is biographically inclined, recalls at least four events in the course of my presidency that are worthy of notice. The first is the passage by the Legislature of Act 49, in 1894, which created the State Board of Medical Examiners, thereby giving the Society an official status as an arm of the State in regulating the practice of medicine in Louisiana.[2] The second, was the publication of the first printed and complete medical directory of Louisiana as a supplement to our transactions. The production of this work was indispensable as a tool for the successful organization of the profession of the state. It involved an immense amount of correspondence which kept me busy as its editor and publisher during the greater part of my administration. There was then no Polk's Directory or that of the American Medical Association to help us out, as at present, in obtaining a dependable census and directory of the medical profession of the state.[3] Another event of importance was the identification of the obscure, long-continued fevers which prevailed in Louisiana and the South generally,—known as typho-malarial, thermic and various other names,—as an atypical typhoid, which had challenged the diagnostic ability of the ablest clinicians in the country at a time when bacteriology and serology of typhoid and malaria were still groping in their infancy. The identity of this fever was finally and indisputably established as typhoid by my own clinical observations and those of an expert committee of internists and pathologists which I had appointed.[4]

My growing interest in blood vessel surgery was also evidenced in the reports of a considerable number of unusual aneurysms and vascular wounds particularly, the first case of intra-aneurysmal suture in 1888, that I contributed to the proceedings of the Society for that year.[5]

DR. A. B. MILES

In 1894, a great loss was sustained by the medical profession of Louisiana in the untimely death of Dr. A. B. Miles, the thirteenth president of the Louisiana State Medical Society, and my immediate predecessor in that office. It is a sad commentary on the crude state of prophylactic sanitation at the time, when we consider that so able a doctor, the chief surgeon of the greatest hospital in the South, should have died of typhoid, an avoidable and preventable infection. At that time there was no Widal test, no typhoid vaccine.

Dr. Miles was surgeon in chief of the Charity Hospital; a very successful and judicious surgeon, who commanded universal respect and was the first, among other accomplishments, to perform successful laparotomies for gunshot wounds of the abdomen. A very modest man of unpretentious beginnings, but great natural dignity, he was undoubtedly one of the best loved men in the profession of his day. The oration pronounced over his remains in the grand portico of Charity Hospital by his friend and pastor, that divinely eloquent preacher, the Rev. Dr. Palmer, in the presence of a great multitude, was one of the most impressive and sincerely eloquent tributes ever delivered in New Orleans over a medical man.

It has always seemed to me a singular decree of fate that I, who had no intimacy with Miles, but who had for him a genuine respect and admiration and wished him so earnestly to live,—should have been called to succeed him in the three posts which have exercised the most important influence in shaping my professional life—Demonstratorship of Anatomy, the Presidency of the Louisiana State Medical Society, the Professorship of Surgery in the Medical Department of the Tulane University of Louisiana,—in all of which it seems to me I was destined to continue and complete some conspicuous achievement which he had begun.

---

[2] See Executive Presidential address and minutes, Appendix C., Trans. La. State Med. Society, 15:435, 1894.

[3] Appendix G., Trans. La. State Med. Society, 15:493, 1894.

[4] The long continued fevers of Louisiana that resist quinine. Trans. La. State Med. Society, 1885, 7:80, 1885. Remarks on the continued fevers of Louisiana, Trans. L. S. M. S., 15:254, 1894. Med. News, Phila., 65:666, 1894.

[5] Notes of cases illustrating surgical lesions of the vascular system. Trans. La. State Med. Society, 15:286, 1894. Med. News, Phila., 53:462, 1888.

When I took his place in the operating theater at Charity Hospital or in the lecture room, I always felt timid and in doubt that I could ever approach his admirable example of imperturbable serenity and prudence in the operating room, and felt really hopeless of success in possessing the magnetic attraction and confidence that he inspired in all who came in contact with him. The operating theater, named after him, which was built at the Charity Hospital in the first year that I succeeded him in the Chair of Surgery (1894-95), justly renews a tribute to his outstanding merit, in the Miles Amphitheater of the new Charity Hospital, just completed.

1895—THE INAUGURAL MEETING VIVIDLY RECALLED

These early associations and memories of my presidency which are recalled by your reminiscent dedication have led me somewhat out of the historic path that I had intended to follow at the outset of my remarks, so much so, that I now must retrace my steps to a much earlier period in the history of our Society, in fact to the day when I was privileged to attend its birth in April, 1879,—sixty-one years ago. I was then 19 years young, and an undergraduate intern of the Charity Hospital; one of the first class elected (1877-78) by competitive examination in the first year of the triumphant democracy of Louisiana under Governor Nicholls, following the downfall of carpet-bag rule. I was also probably the youngest of the many spectators who attended the birth of our Society. Despite the march of sixty-one years that intervene between that date and this, I remember the meeting and most of the men from the city and country who were present, and who, almost to a man, have long since disappeared. The meeting was held in the main lecture room on the ground floor of that stately old Greek temple on Common Street which had been built expressly to house the newly created Medical Department of the University of Louisiana, in 1837. This has long disappeared to make way for the Tulane theaters and other buildings since demolished, that gave not even the shadow of an idea of the architectural beauty of that vanished first Esculapian temple consecrated to medical education in Louisiana. It was an unusual occasion. A very considerable audience of city and country physicians, many of them newly constituted delegates, were in attendance; attracted probably by the novelty of a new medical society arising out of the ashes of its long extinguished predecessors. The community, still in mourning, had barely recovered from the horrors and afflictions of the disastrous epidemic of yellow fever which had swept over the city in 1878, prostrating over 27,000 of its inhabitants, killing 5,000, besides terrorizing the panic stricken, financially ruined people, paralyzing all the city's commerce, traffic and industry; and, in fact, suspending all the activities of the communities in which it prevailed or threatened with its approach.

FACTORS THAT HASTENED THE ORGANIZATION OF THE STATE SOCIETY

Baffled and seemingly helpless in the presence of this deadly and uncontrollable foe; exhausted, impoverished and discouraged, the doctors who had survived the actual contact with the yellow fever peril, the endless vigils and constant drain upon their strength, and the harrowing tax upon their courage and their sympathies, were anxious for comradeship, mutual communion and that interchange of thought, confidences and emotions that the collective experience of the mass in a common peril leads human beings, like wild creatures of the wilderness, to huddle together oblivious of their savage instincts, and of whatever rivalries or antagonisms that separated them before overtaken by a common catastrophe!

DR. CHAILLE THE FOUNDER; STATE MEDICINE, HIS ENDURING LEGACY TO THE SOCIETY

This was undoubtedly a favorable moment for the organization of a medical society which appealed, not only for city, but for statewide cooperation, and, it was in response to this unusual and undefinable appeal for mutual comfort and support, that the best elements of the profession gathered from diverse parishes of the state to found the same State Medical Society which holds us in her warm embrace at this moment. Apart from the great interest in the meeting, a large number in the audience had been attracted by the prospect of a timely and stirring speech, worthy of the reputation of the orator of the day, who was none other than Dr. Stanford E. Chaillé, my revered teacher, the renowned professor of physiology of the Medical School, universally recognized as the most forceful speaker in the profession of the South,—who had chosen "State Medicine and Medical Organization" as the theme for the annual discourse. Dr. Chaillé was then in his forty-ninth year and at the height of his physical and mental activities, his impressive face, indicative of the intellectual aristocrat that he was, his fine resonant voice, accurate, logical and, at times, impassioned sentences, interspersed with witty commentaries and apt comparisons, eloquent but always free from mannerisms and artificial poses,—was always captivating and convincing in his appeal for his fundamental thesis, viz, organization, cooperative effort and concerted action in promoting the interests of "State Medicine," a term which he had devised and defined as the "application by the State of medical knowledge to the common weal; embracing every subject for the comprehension of which the legislative and executive authority of the government are indispensable." He classified State Medicine into four great subdivisions, namely, the management of public institutions for the sick and infirm; medical education and medical licensure; medical jurisprudence, including the qualification of medical experts in insanity and crime; the functions of coroners, preventive medicine including State and Parish Boards of Health, and vital statistics. This was surely an amazing document, not only for the encyclopedic mass of facts which it contained but for the analytic bibliography of medicine as it applied to legislation in all the states and foreign countries. It was not only an address, and the finest of its kind in our literature,—a literary masterpiece,—but a guide or *vade mecum* for the benefit of the doctors, lawyers and statesmen interested in medical legislation. It served as a basis for a petition of the State and Orleans Parish Societies to the Constitutional Convention, held in New Orleans, in 1879. It won the admiration of the most eminent lawyers of that period; the only criticism was that of Judge Manning, of the Supreme Court of Louisiana, who remarked while praising it, that it was *fifty years ahead of our civilization!* A remark that proved true because, even now —sixty-one years since its adoption by the Convention of 1879—we are still waiting for the execution of no less than six of the eleven specifications submitted for enactment by Dr. Chaillé's legislative committees. But this society cannot forget that the Convention of 1879 did adopt Article 178 of the Constitution of 1879, which was reenacted in 1898, prescribing that the "General Assembly shall provide for the interests of State Medicine in all its departments." This mandatory provision for State Medicine was unprecedented in 1879 and of such great importance, as Dr. Chaillé so often remarked, "that this service of our society should not pass into oblivion."

Dr. Chaillé was the vigilant and hard worked shepherd of this and the Orleans Parish Societies from 1877 to 1886—in fact the author of the first constitution of this and all the Parish Societies; indeed, the father of all legislation which has grown out of the ten years of constant and tireless labor and thought that he devoted to erecting the foundation on which we stand today.

I have dwelt at some length upon the inaugural meeting of our State Society because I am one of the few living who can recall quite vividly—at least, as I do, the superb role that Dr. Chaillé played on that occasion and during the first ten years of the foundation when the whole life of the organization was centered in him; many, like myself, attending because we always found it stimulating and intellectually profitable, to hear him and be near him. The great epidemic of yellow fever I experienced as an intern at the Charity Hospital in 1878, served as the scenario of a great drama of human affliction which left me, as one of those stricken by its touch, with an image of the undying frightfulness of Yellow Jack, the Ogre of the Tropics!

POLITICAL CONDITIONS PREVAILING IN LOUISIANA IN 1878—THEIR INFLUENCE UPON MEDICAL INSTITUTIONS

The fact that the foundation and very existence of this society and that of its affiliate, of Orleans Parish, are due to the delivery of Louisiana from the tyranny and odious bondage of carpet-bag rule, and that it is to the same liberating revolt of the Democracy in Louisiana that I am indebted for my internship at the Charity Hospital in April, 1877, since it was only then that internship could be obtained by competitive examination and not by political preferment,—makes the prospect of a return to the merit system in Louisiana, under Governor Jones, a cheering thought which finds particularly agreeable expression in the general applause that has greeted his appearance here tonight.

* * *

GREETINGS TO GOVERNOR-ELECT JONES—CRUSADER FOR HONEST GOVERNMENT; CHAMPION OF REFORM

As a Louisianian and one of the oldest members of the Louisiana State Medical Society, I am glad of the opportunity offered by the presence of Governor Sam Jones, our honored guest, to add my cordial salutations to the enthusiastic greetings of his host of friends in the medical profession who welcome his coming to this meeting as the manifestation of a friend in hearty sympathy with the aims and purposes of our organization,—an organization which stands for the medical profession of Louisiana in all that is best in its scientific activities and humanitarian ideals.

Governor Jones:* As a citizen and fellow Louisianian, I rejoice at your election to the supreme executive office of the state as a governor pledged to the service of the people,—pledged to their service not only by your public commitments, but your own intimate convictions. Believing with you in strict adherence to the principles of an honest, *bona fide* constitutional government, based upon the efficient functioning of the three coordinated, but *independent* legs of the vital tripod of government,—the executive, legislative and the judicial,—we salute you as the harbinger of a new era of honest, efficient, just and prosperous State government, free from the graft, spoliation, vice, crime and corruption, which in the last dozen years have been fastened on our body politic, as hideous excrescences on the face of our fair State. We trust in your special skill in political cosmetics, to remove these ugly blemishes, bloodlessly but radically, when you open your new sanitarium at Baton Rouge for their treatment.

Please let me say in passing, that you need not worry when you start operating, that our Licensing Board will molest you, or anyone of us will charge you with the illegal practice of medicine. You also may be sure that when you operate on the "lame ducks" of Louisiana's political aviary that no one will be allowed to deduct your fees.

HOPE FOR DEPOLITICALIZATION OF HOSPITALS

It is now too early and unfair to tax your strength and attention with the story of the medical problems which for years and years have clamored for relief from the strangling hands of previous administrations, thus far unavailingly and almost hopelessly, until your election as the champion crusader for honest government, gave us,—the friends of reform,—a cheering intimation that the day would soon come when the spoils system would end. Yes, when the shameless abuses of the Jacksonian political doctrine that "to the victor belong the spoils" would cease to exploit our state hospitals and public institutions for the payment of political debts, or for rewarding of "faithful workers for the cause," or provide steady berths for the kith and kin of the administration.

---

*Due to a previous urgent appointment Governor Jones left before hearing these remarks which, in his absence, were addressed to the president, Dr. Barber.

The reaction and revolt of the public against this century-old, deeply rooted and disgraceful practice has led to the reorganization of the federal service and laid the foundation for the "civil service reform acts," which have been adopted by many states to protect their public servants from the aggression of changing and merciless political factions. But while civil service is gradually spreading over the country, Louisiana politicos have remained adamant and impenetrable to moral suasion!

UNIQUE NON-PARTISAN ADMINISTRATION OF GOVERNOR HALL AT CHARITY HOSPITAL (1912-1916)

The literature of medicine in relation to the State (State Medicine) is enormous and is growing steadily in its manifold and varied phases; the example of political abuse in the administration of the hospitals and eleemosynary institutions of the state, previously quoted, is only a sample of the many problems still waiting satisfactory solution. In this connection it is significant and shameful that in the course of the twenty-seven gubernatorial administrations that have ruled the state, from 1877 (under Governor Nicholls) to 1940, with the election of Governor Sam Jones (an interval of sixty-three years), there is no administration *except one* that adhered even in principle, to civil service rules in dealing with its salaried offices. The exceptional administration referred to was that of the lamented Governor L. E. Hall, of honored memory (in office 1912-1916) who was the only governor during this long period, who kept his promise (to committees of the Medical Staff and alumni of the Charity Hospital) not to politicalize the Hospital by appointment of a partisan board or by utilizing the Hospital appointments for political patronage, as his predecessors had done openly and consistently, and his successors, likewise, with even more assurance and undisguised authority.

The success of Governor Hall's administration still remains unique and unchallenged in the records of the Charity Hospital as the most harmonious, progressive and productive of good for the hospital of any previous administration in its long and uneven history!

HOPE FOR CIVIL SERVICE

We feel confident in Governor Jones' fulfillment of his pledges to eliminate the spoils system, graft and nepotism from his administration. On the other hand we believe in his fairness and sense of justice, recognizing and protecting merit wherever he may find it; not displacing or eliminating competent and worthy men and women in responsible and highly specialized administrative and technical functions in medical institutions, merely to accommodate or oblige the demands of exigent political creditors.

Governor Jones knows now that the organized medical profession of Louisiana, as represented by this organization is patriotic and loyal to its principles and, regardless of party differences, is 100 per cent behind him in any plan or effort that may require the cooperation of the medical profession for the welfare of the State in the service of its people.

In the meantime, it behooves us,—all the friends of medical reform,—to wait until our much overworked Governor-elect be relieved of his most pressing obligations before facing him with our manifold, ever present, but long neglected problems. Quoting from an editorial in one of the daily papers most devoted to Governor Jones' and to our common cause, I would say:

"We are not here to tell Sam Jones how good he is. All of us know how good he is. Don't try to serve him a lot of boloney, but make it your duty, make it the duty of every citizen of this State to help him to carry out his pledges" for it is only by carrying out his pledges to their full verification that Louisiana may again expect to meet her sister states with a clean and smiling face.

* * *

SPEAKER'S CONTRIBUTION TO THE LOUISIANA STATE MEDICAL SOCIETY: PROPOSED ELECTION REFORM

The exceptional distinction which you have chosen to commemorate the sixty years of my official entry into the medical profession and of my membership in the Louisiana State Medical Society, has made me eager to show my appreciation of the compliment by proving that despite the sixty years that have worn away my youth, my interest in our Society's welfare has not abated, nor my mental vigor declined so far, that I could not contribute some added bit of research in medical organization which might benefit this Society now or sometime, in the progress of its expanding evolution. Preoccupied by this thought, I have made a comparative study of the different methods of electing the executive personnel of scientific societies in which all political methods of election are practically eliminated,—and finally, after considerable time and study, have arrived at the conclusions which appear in a report submitted to the House of Delegates at its meeting, Monday, April 22, 1940, where its future will be determined by the Executive Committee of the Society. Whatever happens to this document, I trust it will at least serve as a tribute of my ever faithful interest in the progress and welfare of organized medicine in Louisiana, as represented by our Society.

The political agitation of this State, consequent upon the excitement of the recent gubernatorial campaigns has suggested a discussion of the "*physician as a citizen,*" or, "*the doctor in politics,*" as a timely topic for an address on this occasion. I have done this, but will reserve the address for another less crowded occasion, since my own reactions to politics are, I believe, quite apparent in the preceding paragraphs.

EPILOGUE

Finally, I beg your indulgence for taking so much of the time allotted for my talk to matters reminiscent of episodes related to my personal experience in my sixty years' membership in this society; episodes, which I could multiply a hundredfold under other more appropriate circumstances. You must not, however, blame me altogether if I have been too loquacious, since you should know that even the most innocent and steady old man cannot fail to become egocentric and lose his balance when titillated by the many nice pettings and flattering speeches that have come to crown my harmless antiquity. In further apology for the abuse of so many frequent references to myself, I will seek a shield behind the reactions of my oft quoted master-teacher, Dr. Chaillé, when placed in similar circumstances. "There is so much of that which I have thus far said, which offends me by the use of so many big I's and references to myself, that I am reminded of a criticism of the German Emperor, of whom it was said, that his every speech was limited to his *Me* and *Myself* and *God.*" Should any of you criticize the present speaker by declaring that, worse than the Emperor, I made no appeal to God, but trusted myself to *me, myself,* I would merely remind you that most people besides the Kaiser and myself, find their "*me, myself,*" the most fascinating topic to themselves, though usually, the most wearisome to everyone else.

To avoid still further transgressions upon your indulgence, I will now close with renewed thanks and congratulations on the unsurpassed success of the present meeting.

LIVER DISEASES*

A SYMPOSIUM

ETIOLOGY AND PATHOGENESIS

WILLIAM H. HARRIS†
NEW ORLEANS

It is evident that the presentation of the etiology and pathogenesis of diseases of the liver, in the brief time allotted, is quite impracticable. A proper consideration of these phases of any one such disease would require more than the assigned period. Due apology is, therefore, offered for the "hit and run" or "high point" data that are herewith presented. It appears more logical to offer a brief general analysis of the assigned topic rather than to make any effort at detail which would prove both futile and tiresome.

---

*Read before the Orleans Parish Medical Society March 11, 1940.

†From the Department of Pathology, School of Medicine, Tulane University of Louisiana.

The liver is, of course, one of the largest parenchymatous or functional organs in the host. As a factory of metabolic activity, it is of varied and stupendous extent. Any general description of its gross and microscopic anatomy leads us into a labyrinth too extensive to traverse but in which at least two important features pertaining to altered physiology and disease deserve emphasis.

1. Traveling up its biliary pathways, the intralobular sanctuary is entered in which the primary biliary radicles are formed intercellularly in the hepatic cords. These constitute the source of the vast biliary system. The impediment or infection of this great tributary arrangement presents very tangible instances of both secretory and cellular derangements from which many disease processes ensue.

2. The portal system, with its most extensive circulatory origin from the gastrointestinal canal and its splenic connection, form at once a source of great physiologic activity by means of its expansive redistribution throughout the liver parenchyma. It is to be further realized that although the comparatively small hepatic artery is directly impulsed by the heart, this great portal system is truly venous in its flow through the liver wherein functions are performed. This forms a direct contrast to the circulation of other important organs such as the brain, lungs, kidneys, and pancreas, wherein a strong, pulsating arterial intake exists. While but relatively little analysis of this fact has been made, it is evident that its vital functions require the comparatively sluggish and copious venous circulatory intake.

It must be appreciated that this great venous flow carries both waste material as well as food pabulum primarily into close intimacy with the functioning liver cells through the intralobular sinuses before being returned to the general circulation via the hepatic vein. Therefore, the detoxifying functions, the metabolic and storage capacity of modified food absorption are emphasized and made practical by this shunting or side-tracked circulation into the hepatic structure. Figure 1 shows a schematic graph of intralobular biliary tract origin and portal system termination. Figure 2 shows an injected depiction of the portal system and hepatic venous return both in the normal and obstructed circulation.

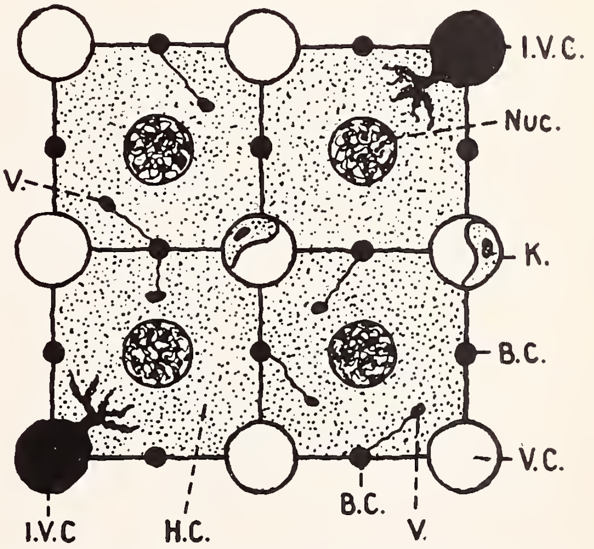


Fig. 1. Schematic graph of four liver cells to show: V. C., vascular capillaries; B. C., bile capillaries; I. V. C., injured vascular capillaries; V., bile vacuole; K., Kupffer cell. (From Wright's Applied Physiology, published by the Oxford University Press, London, 1929.)

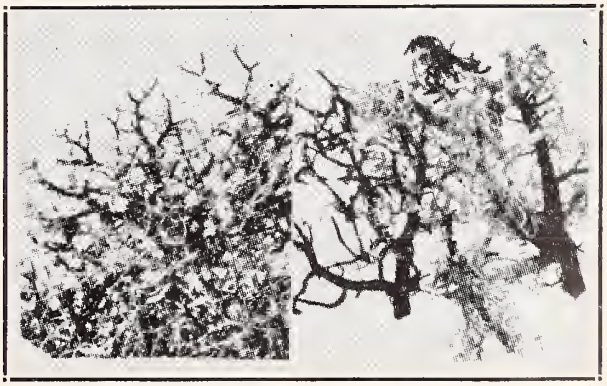


Fig. 2. Left, injected portal vein (dark) and hepatic vein (light) branches in normal organ. Right, evidences of circulatory obliteration. (From A. H. McIndoe, Arch. Path., 5:23, 1938.)

Because of these assignments by nature, there is no organ in the body that presents such a variety of physiologic functions as does the liver. It seems in order, therefore, at least to enumerate the more important of the liver functions inasmuch as disturbances thereof constitute the clinical manifestations of the many disease processes.

ENUMERATION OF HEPATIC FUNCTIONS

- Bile formation
- Formation and destruction of red blood cells
- Metabolism of:
  - Protein (deamination)
  - Fat
  - Carbohydrate
- Heat Production
- Antitoxic and protective (detoxication)
- Blood volume regulation
- Coagulation of blood
- Fibrinogen production
- Iron and copper storage
- Reticulo-endothelial activity (Kupffer cells)

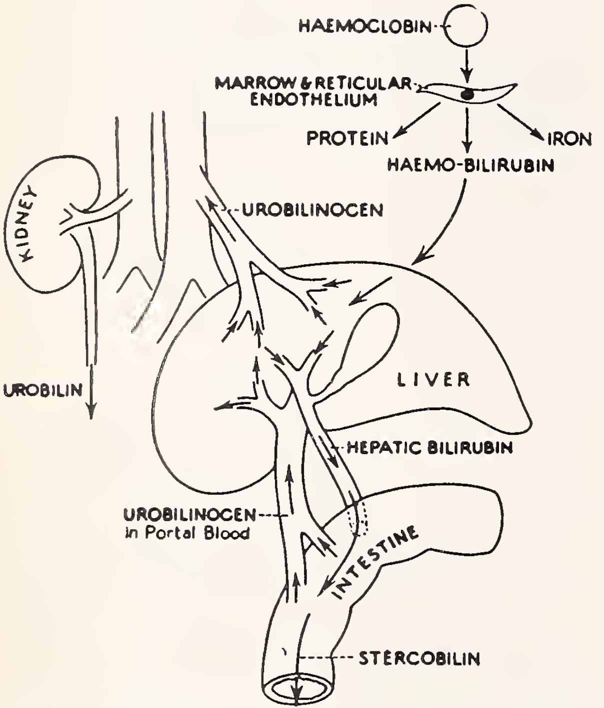


Fig. 3. Schematic diagram of source and circulation of biliary factors. (From Dible and Davie's Pathology, published by Messrs. J. and A. Churchill, London, 1940.)

To touch upon the etiology and pathogenesis of diseases of the liver, it is essential primarily to name the more important of these and to endeavor to group them as far as practical. A distinctive or clear-cut classification is somewhat difficult because of the intermingling and concomitant histopathologic alterations that so frequently coexist. As a matter of fact because of the great likelihood of parenchymatous injury of this extensive organ, many of its lesions or diseases are secondary or part of general systemic disturbances, infectious or otherwise. This is in part due to a combined systemic and portal circulatory intake as well as other factors that have been mentioned.

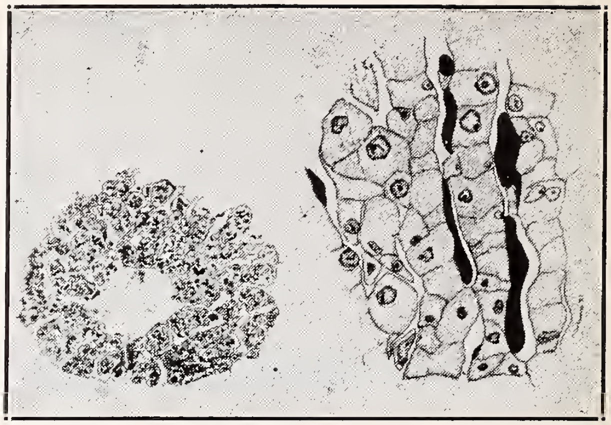


Fig. 4. Left, iron storage in endothelium demonstrated with Berlin blue stain. Right, glycogen storage in liver cells demonstrated with Best's carmine stain. (From Weiss' Diseases of the Liver, Gallbladder, Ducts and Pancreas, published by Paul H. Hoeber, Inc., New York City, 1935.)

RETROGRADE METAMORPHOSIS

- *Degenerations and Infiltrations*
  - Albuminous
  - Fatty
  - Amyloid
  - Hyaline
- *Necrosis*
  - Focal
    - Central
    - Midzonal
    - Peripheral
  - Massive
    - Acute yellow atrophy
- *Pigmentation*
  - Malaria
  - Hemosiderosis
  - Hemochromatosis
  - Argyria
  - Carbon
  - Bile
    - Bilirubin
    - Biliverdin

INFLAMMATIONS

- *Acute*
  - Non-suppurative

- Suppurative
  - Portal
  - Hepatic
  - Biliary passages
  - Pylephlebitis
    - (Appendix)
  - Pseudo-abscess
    - (Amebic)

Chronic Interstitial or Fibrosis

- Cirrhosis
  - Laënnec-atrophic
  - Obstructive biliary
  - Reparative following necrosis
    - Toxic
    - Poisonings (phosphorus, arsenic, mercury, chloroform, cinchophen, impurities of carbon tetrachloride)
  - Hanot's hypertrophic biliary (disputed)
  - Wilson's disease
  - Banti's disease (splenic anemia)

HETEROLOGOUS

Specific Infections

- Tuberculosis
- Syphilis
  - Diffuse
  - Gumma
  - Cirrhosis
    - (Heper lobatum)
- Tularemia
- Actinomycosis

Leukemias

- Lymphoid
- Myeloid
- Von Gierke's disease
  - (glycogenosis)

Parasitic and Cystic Disease

- Simple obstruction
  - (congenital)
- Echinococcus
- Coccidium oviforme
- Flukes

Endocrines

- Thyroid
- Pancreas
- Pituitary
- Adrenal

Neoplasia

- Primary
- Metastatic

Anomalies

- Congenital
- Pressure

ETIOLOGY

In regard to the causative factors of certain of such diseases, an enumeration must necessarily include the micro-organisms that produces a specific disease. On the other hand, such agents represent only a small proportion of the incidence of diseases in this organ.

The etiologic factors can be, to some extent, classified in the following groups:

Specific micro-organisms:

- Various pyogens
- Treponema pallidum
- B. tuberculosis
- B. tularense
- Actinomycetes
- B. welchii
- Leptospira icterohaemorrhagiae (Weil's disease)
- Yellow fever virus
- Malaria, ameba, and various other parasites (echinococcus)

Toxins of Micro-organism and Various Infectious Agents

- B. typhosus
- Pneumococcus
- B. diphtheriae
- B. influenzae and other such systemic infections

Chemical Poisons

- Arsenic
- Mercury
- Chloroform
- Phosphorus
- Cinchophen
- Products of carbon tetrachloride
- Argyria

Absorptive Abnormal Products and Excess of Normal

- Pregnancy
- Suppurative bone lesions
- Intestinal obstruction
- Dietary disturbances

In this can be included altered functions or changes produced by the endocrines, thyrotoxicosis in particular, but also glycogenic storage as related to the pancreas, adrenal and pituitary glands.

Circulatory
- Central cirrhosis
- Chronic passive congestion or "nut-meg liver"
- Portal obstruction
- Biliary impediment

Unknown Origin or So-called "Idiopathic"
- Certain of the cirrhoses, von Gierke's, Wilson's and Banti's disease, also the leukemias and neoplasia.

PATHOGENESIS

This subject is again so far reaching in its scope and detail that only generalities can be mentioned.

Primarily, liver cell disturbance or injury constitutes the focal point of attention. The metabolic capacities of anabolism and katabolism—or of formative or secretory nature—may be disturbed by various abnormal factors without primary cellular alteration. In other words, the nuclear and protoplasmic activities may be altered through imperceptible changes producing a pathologic physiology or malfunctioning. From this phase, mild gradation of cell change ranging up to complete cellular destruction incorporating karyolysis, rhexis, and pyknosis of the important nuclear units may occur, thereby presenting a range extending from mild dysfunction to complete loss of physiologic activity.

Such altered or destructive changes caused by the various toxic moieties or abnormal secretory factors often constitute the process of pathogenesis or evolution of pathology for many of the enumerated diseases. Examples of this are the degenerative changes, including the various forms of focal necrosis, or even organ destruction as seen in acute yellow atrophy. Naturally, within these changes would be included the biliary retention or alterations, the glycogenic disturbances and all other such correlated factors.

The pathogenesis of pyogenic invasion and abscess formations with primary necrosis, inflammatory reaction and accumulated neutrophilic cell response needs no explanation. In this connection, it is in order to contrast the so-called "amebic abscess" which in reality is only a pseudo-abscess. It represents a massive histolysis of liver structure produced, through variously discussed manners, by emboli of the *Endameba histolytica* carried by the portal system from intestinal lesions. It is only when secondary bacterial invasion occurs that true pus is formed.

The pathogenesis of simple atrophic cirrhosis forms in itself an interesting point of discussion. Some contend it is purely a reparative process following in the wake of liver cell injury and destruction. This certainly applies to central or "nut-meg" cirrhosis. On the other hand evidences of a true interstitial inflammation with cellular infiltration, connective tissue hyperplasia, and new bile duct formation are clearly evident in many specimens. Time does not permit of a detailed analysis of this interesting question, nor of the many other diseases wherein the pathogenesis is of value. Such noteworthy examples serve to demonstrate various sequence abnormalities.

SUMMARY

Perhaps the one factor in connection with cause and pathogenesis that might be stressed, is again to emphasize the unusual or unique portal circulation. Herein, a venous circulatory return from the extensive intestinal coils, propelled only indirectly or by a vis a tergo from the heart, and forming thereafter a chief functioning intake, is finally redistributed through capillaries or sinuses in intimacy with the functioning cells of a most versatile organ. Through this extraordinary arrangement, nature seems to broadcast or signal out the diversity of character and the great importance to the human mechanism of liver function. The vast and expansive navigation system, the onslaught of the variety of cargo, both toxic and constructive that is transported, bespeak a more important receiving, manufacturing and distributing center than is, perhaps, ordinarily appreciated. The liability to injury and great significance of such is *prima facie* evident.

There is set forth herein an effort at a general analysis and organized arrangement of cause and formative processes of diseases of the liver, the summary of which, it is hoped, may form a suitable base or preamble to the subsequent presentations of this symposium.

—————o—————

THE DIFFERENTIAL DIAGNOSIS OF LIVER DISEASE AND THE CLASSIFICATION OF JAUNDICE

CARLO J. TRIPOLI, M. D.†
AND
DAVID E. FADER, M. D.†
NEW ORLEANS

A discussion of liver disease which makes any pretense to completeness should really include a consideration of the entire biliary tract and of such related organs and structures as the duodenum, the stomach, the spleen and the portal system. Indeed, it ought also to encompass a description of the disease processes occurring in almost every branch of medicine. The liver, in addition to being the largest organ in the body, plays a very important role in the majority of the important metabolic processes. Since such a comprehensive discussion is impossible outside of a textbook or system of medicine, this paper will be limited to those diseases in which the liver, *per se*, is the chief structure involved. It will further be limited to a discussion of the important differential diagnostic points of these diseases, and of jaundice, which is perhaps their most prominent characteristic.

DIAGNOSTIC CONSIDERATIONS

The diagnosis of hepatic disease is not simple. It is only in those persons who are far advanced in the disease and beyond therapeutic aid that classical signs appear. Unlike the diagnosis of many other diseases, neither history nor physical examination supplies any great amount of helpful information during the first week or two. Extensive liver disease may coexist with few localizing symptoms. Prominent localizing symptoms of liver disease may exist with no general manifestations. Furthermore, many false impressions have come to be accepted as facts and further complicate the situation. For example, the adage that painless, causeless, progressive jaundice means carcinoma of the head of the pancreas with biliary obstruction is not much more than 50 per cent correct.[1] Historical facts may furnish clues, but they supply no conclusive evidence.

Although complete physical examination is essential for the acquisition of facts regarding the role of the liver in any given case, again the diagnostic information obtained early in the disease is conspicuous by its absence. Little more than jaundice, increase in size and shape of the liver and spleen, and the presence or absence of pain over the organ itself, are found on examination except in well advanced cases.

The laboratory methods employed in the differential diagnosis of liver disease are usually considered in the determination of the etiologic factor concerned in the production of jaundice.

THE ANATOMY AND PHYSIOLOGY OF THE LIVER

In order to comprehend the pathogenesis of liver disease and of its chief symptom, jaundice, a brief review of the anatomy of the liver is necessary. The structure of the organ and the hepatic circulation are set forth diagrammatically in figure 1.[2] Brief-

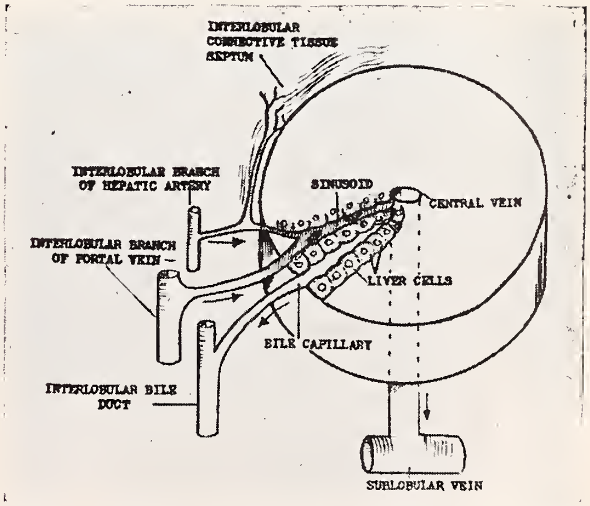

INTERLOBULAR CONNECTIVE TISSUE SEPTUM
INTERLOBULAR BRANCH OF HEPATIC ARTERY
SINUSOID
CENTRAL VEIN
INTERLOBULAR BRANCH OF PORTAL VEIN
LIVER CELLS
BILE CAPILLARY
INTERLOBULAR BILE DUCT
SUBLOBULAR VEIN

Fig. 1. Diagram of the hepatic circulation. Two Kupffer cells shown in a sinusoid. (From Best and Taylor's Physiological Basis of Medical Practice, published by The Williams and Wilkins Company, Baltimore, second edition, 1939.)

---

†From the Department of Medicine of the School of Medicine of Louisiana State University and the Charity Hospital of Louisiana at New Orleans.

ly, the blood supply of the liver comes from two sources, the portal circulation and the hepatic artery, which is a branch of the celiac axis. The blood from these two sources collects in the sinusoids of the liver and empties into the central vein of the lobule, whence it is drained into the sublobular veins and finally into the hepatic veins which enter the vena cava.

The cells of the reticulo-endothelial system, which line the sinusoids of the liver, form part of the bilirubin in the body from the non-ferruginous part of the hemoglobin molecule and then pass it on into the liver cells. The bile pigments are excreted into the bile capillaries, to be collected into the interlobular bile ducts. These ducts form the hepatic duct, which empties into the gallbladder.

Although not all of the functions of the liver are as yet comprehended, those which are known demonstrate its role in other physiologic processes of the body. They may be classified as follows:

FUNCTIONS OF THE LIVER[2,3]

1. The formation of bile acids and bile pigments.
2. The secretion of bile.
3. Carbohydrate metabolism.
    - Deamination.
    - Amino acid synthesis.
    - Urea, uric acid and hippuric acid synthesis.
4. Protein metabolism.
5. Detoxication.
6. Fat metabolism.
7. Fibrinogen production.
8. Elaboration of cholesterol from the blood.
9. Formation of vitamin A from carotene and storage of vitamin B.
10. Blood volume regulation.
11. Iron and copper metabolism.
12. Storage and metabolism of erythrocyte-maturing factor.
13. Blood formation in the embryo.
14. Phagocytic activity of the reticulo-endothelial cells.
15. Production of heparin.
16. Heat production.

THE PATHOLOGIC PHYSIOLOGY OF JAUNDICE

Although the classification of jaundice which was proposed by McNee[4] in 1923 was based on the misconception that bilirubin differs in different types of jaundice, it is still rather generally accepted because of its simplicity. The classification presented by Rich[5] in 1930 is far more accurate from the standpoint of physiologic mechanism: It has never won wide acceptance, however, perhaps because it is more complicated. For simplicity, therefore, the classification of McNee is used in this discussion.

According to McNee, part of the bilirubin in the body is formed in the cells of the reticulo-endothelial system which line the venous sinusoids of the liver. It is then passed on to the liver cells, in which it may possibly be changed. The bile pigments are excreted into the bile capillaries, whence they pass, in turn, into the bile ducts and later into the portal tract.

On the basis of McNee's concept, icterus may develop under any of the following circumstances:

1. When bile pigment which is formed by the reticulo-endothelial cells passes through the hepatic cells into the bile tract, wherein an obstruction exists.

2. When, due to damage of the polygonal cells, the bile pigment carried to them by the endothelial cells is unable to enter them. Under these circumstances the bilirubin passes directly along the hepatic venous radicles into the general circulation. It is also conceivable that the obstruction may be only partial.

3. When there is excessive destruction of the red blood cells and too much bilirubin is formed for the polygonal cells to handle. In such circumstances some pigment may pass normally into the bile capillaries and color the feces, while the excess may pass straight through the hepatic vein into the circulation and produce jaundice.

4. When, in addition to damage and disordered function of the polygonal cells, there is also obstruction of the bile ducts, such as occurs, for instance, in cholangeitis. In such circumstances some pigment might pass directly into the circulation through

the hepatic vein and some might pass through the polygonal cells, to be reabsorbed later because of the existing obstruction.

Jaundice, on the basis of these possible circumstances, may be roughly classified as:

1. Obstructive hepatic jaundice.
2. Hemolytic jaundice.
3. Toxic and infective hepatic jaundice.
4. A combination of any two or more of these forms.

TESTS OF LIVER FUNCTION

Because of the manifold functions of the liver and because of its important role in extrahepatic pathologic states, no single test of function is adequate to determine the type of liver disease existing in a given case.

The most important tests of liver function are:[2,3,6,7]

1. Bile pigment metabolism
    - Icterus index
    - Van den Bergh
    - Urobilinogen
2. Excretory
    - Bromsulphalein
    - Bilirubin
    - Rose bengal red
3. Carbohydrate metabolism
    - Levulose tolerance
    - Galactose tolerance
4. Detoxication and protein metabolism
    - Quick hippuric acid test[8]
    - Cinchophen[9]
    - Takata-Ara[10]
5. Storage and metabolism of erythrocyte-maturing factor.
6. Bleeding, clot formation and contraction.
    - Quick prothrombin time[11]
    - Ziffren (et al.) bedside test[12]
    - Ivy (et al.) bleeding time[13]
    - Boyce serum volume index[14]

PRINCIPLES AND INTERPRETATION OF LIVER FUNCTION TESTS

TESTS RELATIVE TO BILE PIGMENT METABOLISM

1. *Icterus Index.*—Principle: Determination of increase in the bilirubin content of blood serum as compared to 1:10,000 solution of potassium dichromate, which is taken as the standard color.

Interpretation: Normal 4°-6°; latent jaundice 6°-15°; clinical jaundice above 15°.

2. *Van den Bergh.*—Principle: The test is based on the assumption that hyperbilirubinemia resulting from disease of the peripheral circulation (hemolytic jaundice) differs chemically from that due to biliary tract obstruction (obstructive jaundice).

Interpretation: The direct reaction may be immediate, delayed, or biphasic, as presumably seen in jaundice due to biliary obstruction. The indirect reaction is presumably seen in jaundice due to hemolysis, as hemolytic jaundice. The quantitative test may be done to determine the degree of hyperbilirubinemia. Normal range: 0.2-1 units.

3. *Urobilinogen.*—Principle: Bile pigment excreted into the intestinal tract is converted into urobilinogen, which is absorbed and reconverted by the liver into bilirubin. In complete biliary obstruction, in which no urobilinogen is formed, none is present in the urine.

Interpretation: Absence of urobilinogen from the urine of jaundiced subjects signifies complete biliary obstruction.

TESTS RELATIVE TO EXCRETION

Bromsulphalein, bilirubin and rose bengal red tests.—Principle: The ability of the liver to excrete injected substances.

Interpretation: Biliary obstruction, whether mechanical or due to parenchymal disease, results in retention of the injected substance in the circulation.

TESTS RELATIVE TO CARBOHYDRATE METABOLISM

Levulose and galactose tests.—Principle: These tests are dependent on the ability of the liver to metabolize carbohydrates.

Interpretation: (1) Levulose test: Following the oral administration of 40 gm. of levulose, the blood sugar curve should normally approach within 15 mg. of the fasting level at the end of two hours. (2) Galactose test: Following the oral administration of 40 gm. of galactose the output of urine during the next five hours should contain less than 3.0 gm. of sugar.

In obstructive jaundice the carbohydrate metabolism is supposedly not disturbed, as it would be in jaundice caused by parenchymal liver damage.

TESTS RELATIVE TO DETOXICATION

Principle: Such tests are based on the ability of the liver to synthesize hippuric acid from orally administered sodium benzoate.

Interpretation: The oral administration of 5.9 gm. of sodium benzoate normally results in the excretion in the urine of a total of 3 gm. or more of hippuric acid over a four-hour period.

TESTS RELATIVE TO PROTEIN METABOLISM

Principle: Such tests are based on the role played by the liver in the maintenance of the albumin-globulin ratio in the blood plasma, deaminization of amino acids, urea and fibrinogen formation.

Interpretation: Inversion of the albumin-globulin ratio, due to an increase in the globulin fraction, is seen in advanced hepatic cirrhosis (Takata-Ara test).

TESTS RELATIVE TO THE STORAGE AND METABOLISM OF THE ERYTHROCYTE-MATURING FACTOR

Principle: Inability of the liver to metabolize the intrinsic factor secreted by the stomach results in the development of a macrocytic hyperchromic anemia.

Interpretation: Following the parenteral injection of liver extract, in the presence of a macrocytic hyperchromic anemia, there will be a reticulocyte response, despite the demonstration of the intrinsic factor in the gastric juice.

TESTS RELATIVE TO BLEEDING, CLOT FORMATION AND CONTRACTION

Principle: Such tests are designed to identify the bleeding tendency in clinically jaundiced patients. The bleeding tendency is probably due to deficiencies in the essential elements responsible for clot formation and clot contractility.

Interpretation: Prolongation of the normal bleeding time, coagulation time and prothrombin time, or decrease in the serum volume index, indicates a bleeding tendency during or following operative procedures. It should be observed:

1. That normal results from the above tests are no guarantee that excessive bleeding will not occur at operation.

2. That the intensity of the jaundice is no index of the bleeding tendency. The greater the hepatic insufficiency, however, the greater is the tendency to hemorrhage.

OTHER DIAGNOSTIC AIDS

In addition to the liver function tests listed, certain other diagnostic aids, although indirect, may be of considerable value in any disease process which involves the liver. These aids include:[2,3,6]

1. Duodenal intubation and drainage.
2. Roentgenologic visualization of the gallbladder.
3. Roentgenologic visualization of the stomach and duodenum.
4. Roentgenologic study of the diaphragmatic area.
5. Roentgenologic visualization of the liver by intravenous injections of radio-opaque substances.
6. Peritoneoscopy.
7. Pneumoperitoneum.
8. Needle punch biopsy of the liver.

INTERPRETATION OF INDIRECT DIAGNOSTIC AIDS IN THE DIFFERENTIATION OF LIVER DISEASE

1. The demonstration, by means of duodenal lavage, that bile is present in the duodenum is the most direct proof possible that a complete biliary obstruction does not exist. A negative result, however, may be due to improper technic and is therefore not reliable.

2. The demonstration by roentgenographic visualization that the gallbladder fills and empties normally is conclusive evidence that no complete biliary obstruction exists. A negative result, however, is completely unreliable in proving the existence of a complete obstruction.

3. Roentgenographic visualization of the stomach and duodenum may reveal pathologic lesions suggestive of the pathologic lesion in the liver. Neoplasms of the stomach, for example, might lead one to believe that a similar condition exists as the cause of the biliary obstruction. Changes in the contour of the duodenum, such as would be produced by neoplasm of the head of the pancreas, strongly suggest that the biliary obstruction is due to the pancreatic tumor.

4. Roentgenographic study of both diaphragmatic areas frequently presents evidence of hepatic displacement, tumors, cysts or abscesses. The interpretation of these findings in the presence or absence of jaundice is clear. The point should be made, however, that a solitary, intrahepatic neoplasm or abscess frequently exists without clinical jaundice.

5. Roentgenographic visualization of the liver by the intravenous injection of radio-opaque substances (thorium dioxide) reveals the entire outline of the liver and may demonstrate hepatic enlargement, cirrhosis, abscess, or tumor formation. It is agreed, however, that the diagnostic information obtained by this method may well be obtained by simpler methods. In addition, the fact that the injected material remains more or less permanently in the reticulo-endothelial cells renders this test undesirable as a diagnostic procedure.

6. Direct visualization of the lower edge of the liver is possible by peritoneoscopy. This method may be used to demonstrate pathologic lesions at or about the gallbladder and the liver edge, and biopsies may be taken while the instrument is in place. The limitations of the method are obvious, but the possibilities for future development are promising.

7. The simple injection of air into the peritoneal cavity (pneumoperitoneum) will aid in visualizing the size and shape of the liver. It is of especial value in cirrhosis of the liver.

8. Needle punch biopsy supplies information which is conclusive evidence of the pathologic lesions at the site from which the biopsy is taken, and the method is certainly a distinct addition to our diagnostic armamentarium. It has been made more practical by the development of a special needle whose use is not attended with the same degree of trauma, or maceration of tissue, incident to the use of needles which require a suction syringe to obtain the specimen.

For the last year we have employed punch biopsy of superficially located tumors as a diagnostic method, and have repeatedly demonstrated the accuracy by which biopsy material can be obtained. We use a needle manufactured by the McGregor Instrument Company (Vim-Silverman biopsy needle). The instrument, which operates on the principle of a trocar, consists of a short, hollow outer needle, with a beveled edge, containing a smaller-bore hollow needle. The inner needle is longer than the outer needle and is divided in the center. The cutting edge of the inner needle is beveled in the shape of a V. The technic consists of little more than the simple insertion of the two needles, one within the other, in the same manner as an aspirating needle would be inserted. Local anesthesia is used, and a small incision is made in the skin before the needle is inserted, both to facilitate its entrance through the abdominal wall and to eliminate the possibility of including skin in the biopsy specimen, which might lead to an incorrect diagnosis of squamous cell carcinoma.

The operator should practice punch biopsy on the liver of the cadaver before attempting to employ it in living subjects, to learn to appreciate the "feel" of tumor tissue. Certain precautions are obviously necessary when this method is employed, and it is not entirely free from risk, though the proper selection of cases is the first principle of both safety and success.

The method is particularly well adapted to cases of liver disease, regardless of whether or not jaundice is present, in which the liver is large, and there are no other definite findings either by physical examination or laboratory tests. The site of the puncture should be the area most superficially located. If a nodule or nodules can be palpated, specimens should be obtained from those areas. The dangers of hemorrhage following the puncture may be minimized by appropriate examinations for a possible bleeding tendency before biopsy is attempted. These precautions minimize the dangers of the method. Multiple punctures may be done on the same patient at different sites.

SUMMARY AND CONCLUSIONS

1. The pathologic physiology of jaundice and its classification are reviewed.

2. The functions of the liver are outlined.
3. The principles and interpretations of the more commonly employed liver function tests are presented.
4. The inefficiency of the tests for liver function to diagnose or prognosticate liver disease is pointed out.
5. The indirect aids in the differential diagnosis of liver disease are reviewed.
6. The value of needle punch biopsy as a diagnostic aid in selected cases of liver disease is presented.

BIBLIOGRAPHY

1. Rives, J. D., Romano, S. A., and Sandifer, F. M.: Carcinoma of the pancreas, Surg. Gynec. & Obst., 65:164, 1937.
2. Best, C. H. and Taylor, N. B.: The Physiological Basis of Medical Practice, The Williams and Wilkins Company, ed. 2, Baltimore, 1939.
3. Snell, A. and Walters, W.: Diseases of the Gall Bladder and Bile Ducts, W. B. Saunders Company, Philadelphia, 1940.
4. McNee, J. W.: Jaundice: A review of recent work, Quart. J. Med., 16:390, 1923.
5. Rich, A. R.: Pathogenesis of the forms of jaundice, Bull. Johns Hopkins Hosp., 47:338, 1930.
6. Graham, E. A., Cole, W. H., and Moore, S.: Diseases of the Gall Bladder and Bile Ducts, Lea & Febiger, Philadelphia, 1928.
7. Snell, A. M., and Magath, T. B.: The use and interpretation of tests for liver function. A clinical review, J. A. M. A., 110:167, 1938.
8. Quick, A. J.: Conjugation of benzoic acid with glycine, a test of liver function, Proc. Soc. Exper. Biol. & Med., 29:12, 1932.
9. Lichtman, S. S.: Cinchophen oxidation test of the functioning of the hepatic cells, Arch. Int. Med., 48:98, 1931.
10. Cantarow, A. and Trumper, M.: Clinical Biochemistry, W. B. Saunders Company, ed. 2, Philadelphia and London, 1939.
11. Quick, A. J.: Clinical significance of prothrombin as a factor in hemorrhage, Pennsylvania M. J., 43:125, 1939.
12. Ziffren, S. E., Owen, C. A., Hoffman, G. R., and Smith, H. P.: Control of vitamin K therapy. Compensatory mechanisms at low prothrombin levels, Proc. Soc. Exper. Biol. & Med., 40:595, 1939.
13. Ivy, A. C., Shapiro, P. F., and Melnick, P.: The bleeding tendency in jaundice, Surg. Gynec. & Obst., 60:781, 1935.
14. Boyce, F. F., and McFetridge, E. M.: The serum volume test for the hemorrhagic diathesis in jaundice: further observations, New Orleans M. & S. J., 91:357, 1939.
15. Tripoli, C. J., von Haam, E., and Lehmann, E. B.: Roentgenographic visualization of liver and spleen as aid in differential diagnosis of tumors of abdomen, New Orleans M. & S. J., 85:487, 1933.

BASIC THERAPEUTIC CONSIDERATIONS IN DISEASES OF THE LIVER

FREDERICK FITZHERBERT BOYCE, M. D.†
NEW ORLEANS

Because the therapy of diseases of the liver obviously covers too vast a field to be handled in any single discussion, I propose to dismiss very briefly the treatment of certain special diseases and conditions. It will then be possible to devote the greater portion of this paper to what might be termed the basic therapy of hepatic disease, that is, the corrective therapy of liver damage, regardless of its origin, and, in particular, the basic therapy of the hemorrhagic diathesis in jaundice.

THE THERAPY OF SPECIAL DISEASES OF THE LIVER

Toxic, infectious and hemolytic jaundice, to employ the generally accepted classification of McNee,[1] are medical states which do not concern the surgeon after he has once eliminated them as diagnostic possibilities. Obstructive jaundice is a condition of mechanical origin which must be corrected by mechanical, that is, by surgical measures. Depending upon whether the fundamental pathologic cause is stones, strictures, tumors, or similar causes, the appropriate operation may be cholecystectomy, cholecystostomy, choledochostomy, resection of the common duct or of the ampulla of Vater, partial pancreatectomy, some short circuiting operation, or some combination of two or more of these measures. Intrahepatic obstructive jaundice is not amenable to surgical correction.

Solitary amebic abscess of the liver, as Ochsner and DeBakey[2] have clearly shown, is attended with a much lower mortality when it is treated by aspiration and emetine therapy than when open drainage is employed. Pyogenic abscesses of the liver, which are multiple, are not relieved by surgical measures unless they become confluent, which does not usually happen.

Splenectomy has been advocated for primary biliary cirrhosis and has been successful in a very limited number of cases.

---

†From the Graduate School of Medicine of Louisiana State University and Charity Hospital of Louisiana at New Orleans.

The secondary or obstructive type of biliary cirrhosis is treated by the release of the causative obstruction. The various operations which have been recommended for the relief of portal cirrhosis all have the same object, the decrease of the associated portal pressure, but the results have been disappointing. Possible procedures include the formation of an Eck fistula, the intraperitoneal attachment of the omentum to the anterior peritoneum, its extraperitoneal attachment to the recti muscles, and resection of the small intestine.

Solitary tumors of the liver can be excised by the electro-surgical method of Tinker[3] if other circumstances are favorable. For injuries of the liver, particularly crushing injuries which involve extensive destruction of tissue, we have recommended resection of the traumatized area, on the basis of our experimental work, which has shown that, aside from hemorrhage and shock, tissue autolysis is the chief cause of death.[4] The introduction of thrombin for local application by Seegers and his associates[5] would seem to have solved the problem of hemorrhage, which formerly kept suggestions for resection of the liver largely in the realm of theory.

GLUCOSE THERAPY

Experimental and clinical observations have repeatedly made it clear that glucose is the therapeutic sheet anchor in subjects with hepatic and biliary tract disease, and that any other agent, however necessary it may be, is additive and never a substitute for it. Whatever the cause of the liver disease or damage, the affected subject is like an experimental animal whose liver function has been partially destroyed by hepatotoxic drugs or completely destroyed by hepatectomy but from which death can be permanently or temporarily averted by glucose therapy. To observe its effects in hepatectomized animals, which otherwise would die within a few hours, at most, is to witness one of the most dramatic sights of experimental surgery, as has been repeatedly shown.

In normal animals, according to Ravdin,[6] the liver contains 5.5 per cent of glycogen for every 100 gm. of weight, a proportion which in jaundiced dogs is reduced to 1.4 per cent. The higher the percentage of fat in the liver, regardless of the glycogen storage level, the more susceptible it is to injury, whether by disease, toxic drugs or anesthesia. In fact, studies from Ravdin's[7] clinic have shown that the protective action of large stores of hepatic glycogen depends in great part upon the displacement of the fat content by the deposition of glycogen in the liver.

The brilliant results obtained by surgeons who have used glucose therapy intelligently, particularly in biliary tract and thyroid surgery, need no repetition. Equally impressive results are frequently obtained by other surgeons who use the method empirically, according to the example of others, without any comprehension of its rationale. The value of the method has also been proved by the postoperative morbidity and mortality of surgeons who have failed to use it at all. My studies by the Quick test in various diseases have clearly shown that by the use of glucose therapy failing liver function can be restored to a relatively or absolutely safe level before operation and maintained at safe rates after operation.[8-10] In fact, I have observed very few cases in which adequate preoperative glucose therapy has not resulted in a smaller than usual drop in liver function after operation, and have on record a number of cases in which the postoperative values, as the result of such therapy, have actually been higher than the preoperative (figs. 1 and 2). The delayed fall of function which occurs in many cases when glucose therapy is withdrawn permits interesting speculations as to what might have occurred without it in the immediate critical postoperative period, when a sharp depression of function might have been fatal.

To be fully effective, glucose therapy must be administered:

1. For a reasonably long period of time before operation, on the basis of the patient's needs, as determined by initial and serial liver function tests.

FIG. 1

GROUP STUDIES IN APPENDECTOMIZED PATIENTS (*QUICK LIVER FUNCTION TEST.*)

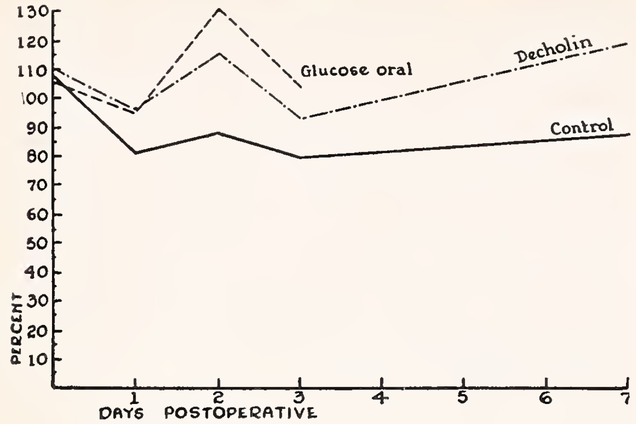
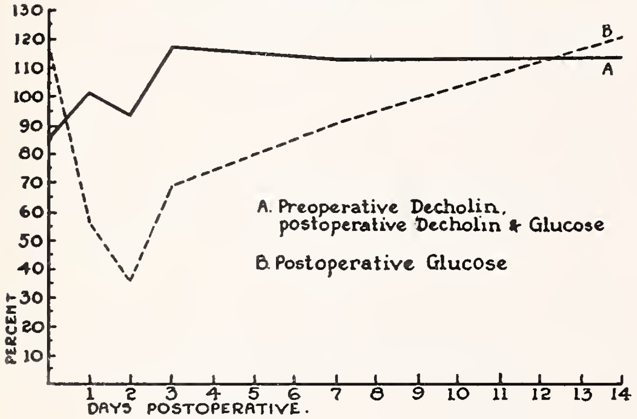


FIG. 2.

GROUP STUDIES IN CHOLECYSTOMIZED PATIENTS (*QUICK LIVER FUNCTION TESTS.*)



2. By month, in preference to vein, whenever this is practical, intravenous therapy being reserved for patients who cannot take glucose by mouth and for immediate preoperative and postoperative needs.

3. At a continuous, steady rate rather than intermittently, no matter what mode of administration is employed. When glucose is used at irregular intervals, periods intervene in which the hepatic glycogen becomes decreased, sometimes to perilously low levels or to levels at which increased quantities of glucose must be administered before restoration to normal levels is possible. My own experience has shown that postoperative glucose therapy is far more effective if preoperative glucose therapy has been employed.

4. Up to the very time of operation, since it has been shown that the hepatic glycogen decreases rapidly during anesthesia.[11]

5. In larger amounts in jaundiced and other individuals whose disease is such that their liver glycogen is particularly low.

6. Without insulin, unless diabetes is present and requires, itself, the use of this agent.[11]

Winslow's[12] recent studies on the utilization of glucose in surgical patients supply an accurate guide to dosage, solution and rate of administration. They supply further proof, as he points out, of Allen's dextrose paradox, a term used to designate "that remarkable power of every non-diabetic organism to utilize dextrose in absolutely unlimited quantities . . . the amount of sugar utilized is governed not by any restriction of power on the part of the organism; it is governed only by the dose."

That the oral administration of glucose is actually more effective than the intravenous administration is a fact which is either not generally known or is generally overlooked. Althausen's[11] comparative studies, however, have made it quite clear, and therapy is greatly simplified if the oral route is used whenever circumstances permit. The simple addition of sweetened fruit juices and hard candy to the diet produces astonishingly good results, with no inconveniences to physician or patient (fig. 1).

Evidence has accumulated to show that dehydration seriously impairs the ability of the liver to utilize glucose, and the importance of the maintenance of the proper fluid balance has been repeatedly stressed by Coller[13] and others. On the other hand, it should be remembered that the too rapid or too profuse administration of fluids results in the loss of a considerable quantity of sugar through the kidney glomeruli before it has had any chance of being utilized by the liver.

Ravdin and his associates[7] have pointed out that a high glycogen and a low lipid level in the liver do not necessarily go hand in hand, and have stressed the importance of including protein (at least 14 per cent) in the diet. The possibilities of intravenous protein therapy have recently been demonstrated by Elman and Weiner,[14] and Quick[15] some years ago pointed out that this necessary element of the diet could be safely and rapidly supplied by the use of gelatin. The present advertising of the manufacturers of gelatin suggests that they have learned of this or some similar recommendation.

THE THERAPY OF THE HEMORRHAGIC DIATHESIS IN JAUNDICE

The therapy of the hemorrhagic diathesis in jaundice depends upon the etiologic factors which produce it. These factors, to express it as simply as possible, are now known to be a deficiency in the plasma prothrombin of the blood,[16] which in turn is due to a deficiency of the fat-soluble vitamin K,[17] which in turn is due to the absence of bile salts in the intestinal tract,[18] or to the destruction of intestinal surface which prevents their absorption.[19] The background of the whole picture is liver damage, which apparently may be actually causative or merely concomitant.[20] The final convergence of these numerous lines of experimental inquiry has for the first time permitted a rational concept of the hemorrhagic diathesis and at the same time has made clear the appropriate therapy for its control. The bleeding tendency is now recognized as a "conditioned deficiency" and its correction is effected by rectification of the various deficiencies which make up the picture and which are expressed, so to speak, as hemorrhage.

I share Quick's[21] opinion as to the relative infrequency of the hemorrhagic diathesis. It is certainly not common in this community. One hesitates to postulate a geographic distribution, but it may possibly be, in the light of present knowledge, that it is unusual here because of the large quantities of vitamin K which are included in the usual diet. Green vegetables are in market at reasonable rates at all seasons of the year. Intelligent persons use them in their diets to balance them. The poorer classes eat them because they are cheap. The negro, as we all know, likes cabbage and turnip greens above all things, and that he eats them cooked with salt meat, ham bone or bacon is highly significant, for vitamin K is a fat-soluble vitamin.

Whether or not this explanation covers the infrequency of hemorrhage in jaundice in this community I do not undertake to say. It is pure speculation, but it does not seem unreasonable in the light of recent discoveries. A still more speculative possibility is that different individuals may exhibit a bleeding tendency under different climatic conditions, and that in this temperate and semi-tropical climate the critical level is somewhat lower than it is in colder climates. The low values which we have found for the serum volume index in newborn children who have had no hemorrhagic tendency seem additional corroboration of this theory.[22]

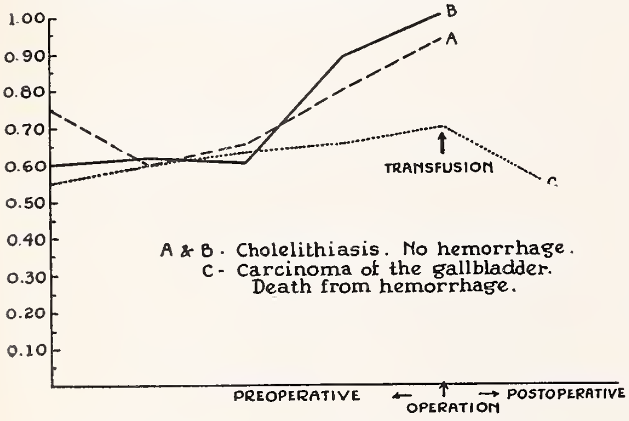
Be this as it may, the only proper attitude is to suspect that every jaundiced subject may have a bleeding tendency and to make the necessary tests to demonstrate it. Such studies provide information as to the patient's preoperative status, determine the preoperative therapy to be employed, and furnish a basis of comparison for postoperative studies as well as a guide to postoperative therapy. The bedside test of Ziffren and his associates[23] has not proved entirely accurate in my experience, and I prefer the more complicated test for prothrombin time devised by Quick and his associates[16] or the very simple but apparently entirely accurate serum volume index of our own devising.[24] Some test for liver function should also be employed, preferably the Quick hippuric acid test[21] or the serum bilirubin test,[25] or both.

Single tests for either the hemorrhagic diathesis or for liver function are not reliable, especially if they are performed considerably in advance of the operation. The only two instances in which I have observed the serum volume index to be inaccurate were cases in which single determinations were made three and four weeks, respectively, before operation. Conditions may alter within a few hours, let alone within days and weeks.

Serial tests are also important after operation when, in addition to operative trauma, a prothrombin deficiency exists, perhaps due to the presumable consumption of large amounts in the production of the fibrinous exudate in the margin of the wound as a part of the healing process.

The correction of a demonstrated tendency to hemorrhage, in view of what has just been said, is a fairly simple matter. It involves: (1) The supply of vitamin K in some concentrated and readily assimilable form; (2) the supply of bile salts; (3) the supply of a minimum amount of fat in the diet; (4) the use of glucose therapy for the improvement of liver function, as has already been described; (5) the use of such other general measures as would be employed in the preparation of any patient for serious surgery.

FIG. 3.
VITAMIN K THERAPY IN THE HEMORRHAGIC DIATHESIS
(*SERUM VOLUME INDEX DETERMINATIONS.*)



I have used vitamin K in its natural form, that is, in tomatoes, lettuce, cabbage and other vegetables, and have had remarkably good results with this crude method (fig. 3A). I have used it in the form of cerophyll, a preparation of dried young cereal plants, oats and wheat, and in the form of klotogen Abbott, a vitamin K concentrate. Recently I have used it in the form of thyloquinone Squibb, a synthetic form (2 methyl 1, 4 naphthoquinone). The synthetic substance is new, but has already given excellent results and will probably, as a matter of convenience, eventually replace most of the other preparations. The only patient I have ever seen who failed to respond to adequate vitamin K-bile salt therapy was treated with cerophyll (fig. 3C), but her lack of response was undoubtedly due to her depressed liver function rather than to the form in which the vitamin was administered. Exactly what the connection is between liver damage and the hemorrhagic diathesis is not yet clear, but there seems no doubt that vitamin K therapy is not effective unless liver function can be improved.

Various preparations of bile salts are reported as giving satisfactory results. I use bilein Abbott, but I do not believe that general rules can or should be laid down as to such details. Provided that vitamin K and bile salts are administered in adequate amounts, each surgeon will eventually determine his own mode of therapy on the basis of his own experience and observations. The reports in the literature seem to make that point clear.

Administration can be made by mouth or duodenal tube, intramuscularly or intravenously, depending upon the urgency of the circumstances, the state of the patient, and the type of preparation used. Generally speaking, the oral route should be used whenever time permits, the intravenous route being reserved for cases in which bleeding has already occurred or rapid preoperative preparation is essential. Again these are matters which the individual surgeon will work out for himself. The simpler measures, however, seem surprisingly effective. I had excellent results in a recent case of postoperative hemorrhage which I saw in consultation by putting klotogen and bilein into the stomach by tube.

Jaundiced subjects should be classified into three groups, on the basis of whatever test for the hemorrhagic diathesis the surgeon may be using. Patients with a serum volume index above 0.85 (1.0 being the standard of normal) are considered as unlikely to bleed, patients with indices between 0.85 and 0.75 as within the danger zone, and patients with indices below 0.75 as in frank risk of hemorrhage. An ample margin of safety should always be allowed, for both liver function and plasma prothrombin are decreased after operation in every case. For that reason, I agree entirely with Butt and his associates[19] that the time to treat deficiency states is when they are apparent only in the laboratory.

Furthermore, when liver function tests are low or when gross hepatic damage is observed at operation, precautions should be redoubled. It is possible to control bleeding after operation in many unprepared or badly prepared cases, but certainly today the surgeon has no right to submit the patient to such a risk. Finally, therapeutic results are apparently short-lived as long as the basic pathologic state remains uncorrected, and vitamin K-bile salt therapy should never be discontinued merely because one or two tests indicate that the bleeding tendency has been controlled.

Although transfusion is no longer as important as it once was, it is still the quickest possible method of replacing lost blood and also of increasing the prothrombin in the blood stream. The replacement of prothrombin explains why in the pre-vitamin K era transfusion done immediately before operation was frequently effective, even though it was used empirically. It also explains Walters'[26] observations that there is a period of eight to ten hours after transfusion which is the optimum period for operation and in which the coagulation time is visibly improved. Unawares, he was advising operation at the time a temporary increase in prothrombin has been effected.

Transfusion also improves the oxygen saturation of the blood, which in turn improves the state of the liver, and thus improves the effectiveness of vitamin K therapy. Ravdin and his associates have shown that the use of oxygen effects remarkable improvement in livers in which fatty changes are apparent.

DECHOLIN THERAPY

Remarkable improvement of liver function has been obtained in non-jaundiced patients with latent or evident liver damage by the use of various bile salts. My own preference is for decholin (dehydrocholic acid), which is not toxic and which has so marked a cholagogic action that it produces all the effects of a physiologic lavage. It is contraindicated in obstructive jaundice, in which an increased bile secretion could serve no useful purpose and might do harm.

I have used decholin in biliary tract and thyroid surgery, in various forms of liver disease, and in appendectomies, hernioplasties, and similar elective procedures. As a general rule, when it was taken by mouth for 48 or even for 24 hours before operation, the fall in liver function after operation was considerably less than usual and the values were sometimes higher than the preoperative values (figs. 1 and 2). The use of glucose, by mouth or vein, and decholin therapy in combination produced still better results (fig. 2).

This is such a simple method of improving liver function, and the good results are so out of proportion to the slight trouble and expense involved, that it seems well to employ it in even normal subjects, in whom ordinarily no special preoperative or postoperative therapy is employed, to provide against the fall in liver function which occurs after all surgery.

Decholin is also useful in biliary tract disease in which operation is refused or contraindicated for some reason. I have under such treatment at this time a woman 80 years of age who has been treated for gallbladder disease by various medical methods for the past 12 years. She is now enjoying, she tells me, the greatest comfort she has had during that period.

The most striking results with decholin therapy have occurred in a small group of patients who were apparently on the verge of developing the type of postoperative liver failure in which the renal factor is dominant. It is not too much to say that in three or four such cases the patients seem literally to have been dragged back from the gates of death. On the other hand, decholin therapy has not been effective in averting the fatal outcome in the hyperpyrexic type of liver failure, at least when the syndrome is definitely established.

THE CONCEPT OF LATENT HEPATIC DYSFUNCTION

It will be observed that this communication has dealt not only with frank disease of the liver but with diseases in which hepatic deficiency is not ordinarily recognized to play any part. Our own studies with the Quick hippuric acid[9, 10] and serum bilirubin tests[27] have shown, however, that liver deficiency is a rather frequent finding in disease which does not primarily involve the liver or the biliary apparatus.

We are not alone in this opinion. This is the concept of the liver weakling, as advanced by Henschen.[28] This is the concept of unsuspected hepatic deficiency, as advanced by McNee,[29] Judd,[30] Weir,[31] Rozendaal and Comfort,[32] Hurst[33] and others. Time does not permit a discussion of it, but it should be said that its acceptance carries two implications:

1. The investigation of every surgical patient from the standpoint of the state of his liver, as well as from the standpoint of the state of his heart, lungs and kidneys.

2. The routine use of such simple measures as oral glucose or decholin therapy, or both, as prophylactic measures in patients in whom any degree of hepatic dysfunction is demonstrated, and preferably also in patients whose liver function is normal, to guard against the postoperative decrease which has been shown to occur after even the simplest surgery.

SUMMARY AND CONCLUSIONS

1. The therapy of various surgical diseases of the liver has been briefly outlined.

2. Glucose is the sheet anchor of therapy in hepatic disease, and any other treatment, however essential it may be, is additive and never a substitute for it. Oral administration is surprisingly effective.

3. The identification of the jaundiced patients who are likely to bleed is the first consideration in the prevention of the catastrophe. Corrective therapy includes the supply of vitamin K in combination with bile salts and a minimum proportion of fat in the diet, in addition to glucose therapy. Transfusion is of temporary benefit in the occasional case.

4. Decholin (dehydrocholic acid) improves liver function, particularly when combined with glucose therapy. It also can be given by mouth.

5. The concept of the liver weakling or of unsuspected hepatic dysfunction suggests the investigation of all surgical patients from the standpoint of the state of their livers and the use of such simple measures as oral glucose and decholin to guard against the fall in liver function which usually accompanies all operative procedures.

6. It should, of course, be understood that nothing which has been suggested in regard to studies of liver function should in any way be construed as a suggestion that laboratory tests should be substituted for clinical observation.

REFERENCES

1. McNee, J. W.: Jaundice: A review of recent work, Quart. J. Med., 16 :390, 1923.
2. Ochsner, A., and DeBakey, M.: Liver abscess. I. Amebic abscess. Analysis of 73 cases, Am. J. Surg., 29 : 173, 1935.
3. Tinker, M. B., and Tinker, M. B., Jr: Resection of the liver. Conditions favorable for operation; methods; experimental studies, J. A. M. A., 112 :2006, 1939.
4. Boyce, F. F., and McFetridge, E. M.: Autolysis of tissue in vivo. An experimental study with its clinical application in the problem of trauma to the liver, Arch. Surg., 34 :977, 1937.
5. Seegers, W. H., Brinkhous, K. M., Smith, H. P., and Warner, E. D.: The purification of thrombin, J. Biol. Chem., 126 :91, 1938.
6. Ravdin, I. S.: Some aspects of carbohydrate metabolism in hepatic disease, J. A. M. A., 93 :1193, 1929.
7. Ravdin, I. S.: Some recent advances in surgical therapeusis, Ann. Surg., 109 :321, 1939.
8. Boyce, F. F., and McFetridge, E. M.: Studies in hepatic function by the Quick hippuric acid test. I. Biliary and hepatic disease, Arch. Surg., 37 :401, 1938.
9. Boyce, F. F., and McFetridge, E. M.: Studies in hepatic function by the Quick hippuric acid test. II. Thyroid disease, Arch. Surg., 37 :427, 1938.
10. Boyce, F. F., and McFetridge, E. M.: Studies in hepatic function by the Quick hippuric acid test. III. Various surgical states, Arch. Surg., 37 :443, 1938.
11. Althausen, T. L.: Effects of the administration of glucose on the glycogen content of normal and experimentally damaged livers, J. A. M. A., 100 :1163, 1933.
12. Winslow, S. B.: Dextrose utilization in surgical patients, Surgery, 4 :867, 1938.
13. Coller, F. A., Dick, V. S., and Maddock, W. G.: Maintenance of normal water exchange with intravenous fluids, J. A. M. A., 107 : 1522, 1936.
14. Elman, R., and Weiner, D. C.: Intravenous alimentation with special reference to protein (amino acid) metabolism, J. A. M. A., 112 :796, 1939.
15. Quick, A. J.: The relationship between chemical structure and physiological response, J. Biol. Chem., 98 :157, 1932.
16. Quick, A. J., Stanley-Brown, M., and Bancroft, F. W.: A study of the coagulation defect in hemophilia and in jaundice, Am. J. Med. Sci., 190 :501, 1935.
17. Dam, H., and Schönheyder, F.: A deficiency disease in chicks resembling scurvy, Biochem. J., 28 :1355, 1934.
18. Quick, A. J.: Vitamin K, J. A. M. A. 109 :66, 1937.
19. Butt, H. R., Snell, A. M., and Osterberg, A. E.: Oral and intramuscular administration of vitamin K in

---

My thanks are due to Riedel-deHaen, Inc., the Abbott Laboratories, and E. R. Squibb and Sons, who variously supplied the decholin, klotogen and thyloquinone used in these studies.

hemorrhagic diathesis of obstructive jaundice, J. A. M. A., 112:879, 1939.

20. Roderick, L. M.: A problem in the coagulation of the blood: sweet clover disease of cattle, Am. J. Physiol., 96:413, 1931.

21. Quick, A. J.: Clinical significance of prothrombin as a factor in hemorrhage, Pennsylvania M. J., 43:125, 1939.

22. Leidenheimer, H., Jr., and Boyce, F. F.: Serum volume index studies in newborn children, Proc. Soc. Exper. Biol. & Med., 43:446, 1940.

23. Ziffren, S. E., Owen, C. A., Hoffman, G. R., and Smith, H. P.: Control of vitamin K therapy. Compensatory mechanisms at low prothrombin levels, Proc. Soc. Exper. Biol. & Med., 40:595, 1939.

24. Boyce, F. F., and McFetridge, E. M.: The serum volume test for the hemorrhagic diathesis in jaundice: Further observations, New Orleans M. & S. J., 91:357, 1939.

25. Jankelson, I. R. and Gargill, S. L.: Bilirubin liver function test. I. Modification of the method, New England J. Med., 204:547, 1931.

26. Walters, W.: Obstructive jaundice: Physiologic and surgical aspects. Publications of the Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, 1931.

27. Personal unpublished data.

28. Henschen, C.: Die akuten, subakuten und chronischen Schwellungskrisen der Leber (akutes and chronisches Leberglaukom) und ihre chirurgische Behandlung, Arch. f. klin. Chir., 167:825, 1931.

29. McNee, J. W.: Hepatitis, Edinburgh M. J., 46:305, 1939.

30. Judd, E. S.: Physiology of the liver and its relation to surgery of the biliary tract, Ann. Surg., 90:1035, 1929.

31. Weir, J. F.: Hepatitis. Some forms not commonly recognized, J. A. M. A., 111:1356, 1938.

32. Rozendaal, M. W., Comfort, M. W., and Snell, A. M.: Slight and latent jaundice. The significance of elevated concentrations of bilirubin giving an indirect van den Bergh reaction, J. A. M. A., 104:374, 1935.

33. Hurst, A.: Diseases of the liver, Practitioner, 140:653, 1938.

INFLUENZAL MENINGITIS*

A REVIEW OF RECENT LITERATURE WITH CASE REPORTS

RUTH ALEMAN, M. D.†
New Orleans

Seven cases of influenzal meningitis treated with sulfapyridine have been fatal in the last few months in New Orleans in children under two years of age. They are being reported in the belief that if we are eventually to arrive at a fair conclusion as to the efficacy of chemotherapy in the treatment of this disease, failures as well as successes should be uniformly reported, so that the percentage of cures may be honestly computed. If all fatalities are reported, some day it may be determined whether or not the cures attributed to chemotherapy exceed the small percentage of spontaneous cures.

Although the differential diagnosis of meningitis belongs essentially to the present century, Joseph Jones,[1] writing in 1873, tells that meningitis was reported to have existed in the southern United States as early as 1776, and that it invaded New Orleans in 1826, again in 1850, and again in 1872-73. It was first called "head pleurisy" and later cerebrospinal meningitis.

New Orleans physicians were not slow in becoming familiar with European discoveries. Discussing Bloom's[2] survey of influenzal meningitis in 1930, J. B. Guthrie stated that cases were being so diagnosed in the New Orleans Charity Hospital during his internship in 1898-99, and that a three months' old baby under his care recovered with no treatment other than hot baths. It is assumed the diagnosis of influenzal meningitis was made without laboratory confirmation, since Slawyk's first laboratory diagnosis was made in 1899.

Since 1899, medical science has accomplished many advances in chemotherapy, immunology, vaccine preparation, and supportive treatment, and has developed a technic for the treatment of influenzal meningitis in which so many factors participate that when a recovery is effected it is difficult or impossible to know what cured the patient. It is interesting to note in this connection that, although the failure to cure influenzal meningitis is always excused on the basis of virulence of the disease, success of a remedy is not generally attributed to a less virulent strain, nor relegated to the class of spontaneous cures.

SURVEY OF LITERATURE

In 1936, Wilkes-Weiss[3] made a critical survey of 500 cases of influenzal meningitis from the literature. "There were 373 infants under two years of age with nine recoveries, giving a mortality of 97.6 per cent, while 26 of the 127 patients over two recovered, or a mortality of 79.5 per cent."

---

*Delivered at the regional meeting of the American Academy of Pediatrics (Region II) at the Edgewater Gulf Hotel, March 15, 1940.

†From the Department of Pediatrics, Louisiana State University Medical Center.

The preponderating incidence of the disease in infants has been brought out many times, but nowhere else have I found the difference in mortality so graphically stated.

This survey was made in 1936, before treatment with drugs of the sulfonamide group had been instituted, and it is well to bear this in mind, for, unless chemotherapy betters the pre-established mortality rate of 79.5 per cent in patients over two years of age, it has accomplished nothing. On the other hand, even a small percentage of recoveries in infants is significant.

In 1930, Bloom[2] assembled Rivers' 220 cases which had been published in 1922,[4] his own and others from the literature, totaling 302 cases. One hundred and eighty-seven were under two years of age, of whom only six recovered, or a mortality for this age group of 96.7 per cent.

In 1934, Neal et al.[5] reported 111 cases of their own with 62 under two years, all 62 fatal. Similar series of patients under two with 100 per cent mortality are reported by Jenks and Radbill,[6] 26, (1931); Hart,[7] 16, (1932); Ward and Fothergill,[8] 25, (1932); Tokunaga,[9] 23, (1936); Bridgeman and Bissett,[10] 5, (1938); New Orleans Charity Hospital records, 17, (unreported); Silverthorne et al.,[11] approximately 50 (1937). (They state that 78 per cent of 70 children were between two months and three years, and the only patient who recovered was more than two years old. In their serum treated group of 36 cases with 11 cures, 78 per cent under three years, only two under two years recovered.) Huntington, Wilkes-Weiss (1936)[12] report 42 cases under two years with one cure.

From these and other recent reports, I have assembled 478 cases of influenzal meningitis in children under two years, including 17 at the New Orleans Charity Hospital during the last five years, and two in my private practice,—in all 15 recoveries, or a mortality of 96.8 per cent (table 1).

TABLE I

CASES OF INFLUENZAL MENINGITIS UNDER TWO YEARS

	Cases Reported	Died	Recovered
Rivers (1922)2	152	147	5
Marie & Pretet (1927)14	1	0	1
Bloom (1930)2	35	34	1
Jenks & Radbill (1931)6	26	26	0
Martmer & Davidson (1931)42	1	0	1
Gibbens (1931)47	1	1	0
Johnson (1932)48	1	1	0
Hart (1932)7	16	16	0
Ward & Fothergill (1932)8	25	25	0
Pittman (1933)13 About	5	5	0
Paisseau (1933) (See Spekter)18	1	0	1
Neal et al. (1934)5	62	62	0
Faust & Stein (1935)41	1	0	1
Huntington & Wilkes-Weiss (1936)12	42	41	1
Tokunaga (1936)9	23	23	0
Silverthorne et al. (1937)11 About	50	48	2
Basman & Perley (1937)29	1	1	0
McQuarrie (1937)30	1	1	0
Jones (1937)24	5	5	0
Massachusetts General Hospital (1938)33	1	1	0
Bridgeman & Bissett (1938)10	5	5	0
Waring (1939)23	1	0	1
Roche & Caughey (1939)36	1	0	1
Sappington & Favorite (1939)21	2	2	0
New Orleans Charity Hospital (1935-1940)	17	17	0
Aléman (1939-1940)	2	2	0
Totals	478	463	15

This slight reduction in mortality since Wilkes-Weiss' 97.6 per cent in 1936 is perhaps due to reported isolated cures, without reports of as many isolated fatalities, and inability to determine ages in many reports. Unfortunately, the percentage of cures in unselected series does not support optimism in regard to any special form of treatment.

ANTI-INFLUENZAL SERUM

Wollstein[5] prepared an anti-influenzal serum by immunizing goats in 1911. Torrey and Packard[13] each reported cure of an eleven year-old patient with it, in 1915 and 1916 respectively. Dunn used it in 11 and Neal in five fatal cases. Anti-influenzal horse serum has been developed since 1920 by the Research Laboratory of New York City; by Wilkes-Weiss, of Washington University, St. Louis; by Hugh K. Ward and Joyce Wright, of Harvard; by Margaret Pittmann, of the Rockefeller Institute; and by the Massachusetts Board of Health (Fothergill's serum), which last is the serum with which Silverthorne et al., Schwentker and others have obtained such promising results.

Autogenous vaccines are being used, and cure of a child under two years was reported in France in 1927 (Marie and Pretet[14]) by intrathecal injection of vaccine prepared from a fatal case of influenzal meningitis.

Hattie Alexander,[15] of the Department of Diseases of Children, College of Physicians and Surgeons, Columbia University, writes: "The treatment of influenzal meningitis in children with sera from horses immunized with *H. influenzae* has in general been unsuccessful." With this in mind she has developed a rabbit serum which, after experiments with animals, was tried in humans. She says: "The antiserum produced by this method has yielded encouraging results in the treatment of *H. influenzae* meningitis. Untreated serum was used intrathecally, a globulin fraction intravenously."

So far as can be determined from the literature, patients treated with serum from the Massachusetts Board of Health, by Fothergill's method, stand alone in point of view of mortality. In his last published report (1937), Fothergill[16] reported 201 serum-treated cases with 41 recoveries, or a mortality of 84.6 per cent. He included in this report two striking series, Schwentker's 17 cases with five recoveries, and that of Silverthorne and Snelling, 35 cases with 10 recoveries, later reported by Silverthorne et al. with an additional case,* making 36 cases with 11 recoveries.[11]

However, these reports are counterbalanced by apparently overlapping cases from the Infants and Children's Hospital, Boston, as reported by Ely R. Cannon. In a discussion of Dr. Neal's[17] paper in 1938, Cannon said: "Ninety-six patients with influenzal meningitis have been treated with specific serum and of this group there were six recoveries; six additional patients have received combined serum and sulfanilamide treatment with no recoveries."

Spekter (1936),[18] Bridgeman and Bissett (1938)[10] on the West coast, and Young et al. in Omaha (1938),[19] each report cures with serum shipped by Fothergill, the ages being six, eight and five years respectively. Rittenberg's cure was in an eight year old child who also received serum.

Neal,[20] speaking of Fothergill's method of serum and complement says: "We have tried the combination of serum and complement in a fair number of cases without success up to the present time."

In 1933, Pittman[13] reported the results of 18 patients treated with serum from her laboratory. Only one recovered: a child two years old.

In 1936, Huntington and Wilkes-Weiss[3] reported use of serum in 15 patients in the St. Louis Children's Hospital and four elsewhere, with only one recovery, a child seven years old. Summarizing their experience and several other cures, they say: "One would have been more inclined to attach significance to these recoveries if the individuals had been infants. If these patients had been the only ones in the older age group who had received serum, a stubborn optimist, while conceding that the serum was perhaps useless in infants, might have continued to hope that it would be useful in older patients . . . Evidently the ultimate results are discouraging in both groups." And further: "Anti-influenzal serum is not a success despite the brilliant and arduous work which lies back of some of the clinical experiments . . . Clearly there is some unknown factor which makes the dislodgment of the meningococcus relatively easy, while meningeal *H. influenzae* is not readily evicted."

Neal et al.[5] reported use of anti-influenzal serum in four cases in 1934, but say: "In none of them could the use of the specific serum be regarded as a determining factor in the recovery."

---

*Since presentation of the present paper (March 15, 1940) an article has appeared by Silverthorne et al. (April, 1940), reporting a total of 65 patients who received specific sera with a mortality of 76 per cent. Sixty-nine per cent were under three years of age; recoveries are not classified as to age. Twenty-nine of the total also received either sulfanilamide or sulfapyridine, of which 22 died.[49]

TABLE 2

PATIENTS WITH INFLUENZAL MENINGITIS TREATED WITH SULFANILAMIDE

	Cases Reported	Ages	Died	Recovered
Basman & Perley (1937)29	1	1 year	1	0
Jones (1937)24	1	2 yr., 10 mo.	0	1
McIntosh et al. (1937)22	2	6 yr. each	2	0
McQuarrie (1937)30	1	20 mo.	1	0
Taylor (1938)32	1	4 yr.	1	0
Folsom & Gerchow (1938)26	1	10 yr.	0	1
Bachhuber (1938)31	1	3 yr.	1	0
Massachusetts General Hospital (1938)33	1	8 mo.	1	0
Teggart (1938)25	1	Adult	0	1
Cannon (1938)17	7	Not stated	6	1
Gordon (1938)27	1	7 yr.	0	1
Young & Moore (1938)19	1	5 yr.	0	1
Sappington & Favorite (1939)21				
(Reporting Appelbaum's,	18	Not stated	17	1
Hageman's,	1	Not stated	1	0
their own)	2	11 mo., 3 mo.	2	0
Waring (1939)23	6	Not stated	6	0
Brown et al. (1939)28	1	6 yr.	0	1
Neal (1939)20	20	Not stated	18	2
New Orleans Charity Hospital	15	9 mo. 7 mo., 2 yr., 3 mo., 4 yr., 6 mo., 2½ yr., 3 mo., 3 yr., 20 mo., 5 yr., 9 mo., 1 yr., 7 mo.. 11 yr.	15	0
Total	82		72	10

In 1938, Neal[17] writes: "During the past five or six years there has been a decided increase in meningitis due to *B. influenzae*. Povitzky found experimentally that mice were effectively protected against lethal doses of the strain *B. influenzae* commonly associated with meningitis by the use of prontosil and a specific serum. With this form of meningitis the clinical results have not corresponded with the experimental results."

In 1939, she[30] repeats: "In treating this form we have used the specific serum intraspinally and also, as bacteriemia is often present, intravenously. Recently we have been combining the serum with prontosil for intraspinal use. Sulfanilamide is given also by other routes. The results, however, have been disappointing. Of 20 cases only two have recovered."

SULFANILAMIDE

The recent report of S. W. Sappington and Grant O. Favorite[21] on the use of sulfanilamide in all types of meningitis includes 25 cases of influenzal meningitis: Appelbaum's 18 cases, five other cases from the literature,* and two of their own. Appelbaum's one recovery "received both anti-influenzal serum and sulfanilamide"; however, "three other cases received both serum and sulfanilamide but ended fatally." They conclude: "The results with sulfanilamide therapy in influenzal meningitis with or without serum so far are not encouraging, there being 24 deaths in 25 cases, a mortality of 96 per cent."

In addition to this series, Neal[20] reported 20 cases with only two recoveries, (1939); Cannon,[17] six, (1938), all fatal; McIntosh et al.,[22] two, both fatal, (1937); Waring,[23] six, all fatal, (1939); Jones[24] (1937), Teggart[25] (1938), Cannon[17] (1938), Folsom and Gerchow[26] (1938), Gordon[27] (1938), Young and Moore[19] (1938), Brown et al.[28] (1939), one cure each; Basman and Perley[29] (1937), McQuarrie[30] (1937), Bachhuber[31] (1938), Taylor[32] (1938), Massachusetts General

---

*Hageman's case[46] is the only one of these five not listed below.

Hospital cases[33] (1938) one death each (table 2).

Adding to these reported cases 15 unreported deaths in the New Orleans Charity Hospital during 1937-1939, we have a total of 82 cases treated with sulfanilamide or closely associated drugs of the same group with ten recoveries, a mortality of 87.8 per cent. In at least 30 cases, anti-influenzal serum was also given, only four of whom recovered. No recovery is reported in a child under two years; however, the ages are not given in four of the ten recoveries.

Long and Bliss[34] in their recent book say: "Neal was not impressed by the effect of sulfanilamide (in influenzal meningitis) in her series of cases, and our experience has been similar to hers."

SULFAPYRIDINE

Five recoveries from influenzal meningitis treated with sulfapyridine have been reported in the recent literature. Tom R. Hamilton and Frank C. Neff,[35] report recovery of a girl two years old treated in the University of Kansas Hospital. The writers knew of no published report "of this type of meningitis in which treatment with sulfapyridine had been successful, but it seemed advisable to try it, especially since serum therapy offered little benefit." No specific serum was used.

J. I. Waring[23] reported two recoveries with sulfapyridine, a negro girl six years old, and a negro boy 22 months, the girl with remaining slight deafness, and the boy with a slight ataxia. Both were treated at Roper Hospital, Charleston, S. C. "Eighteen other patients with the same disease in the hospital over a period of ten years all died. Specific serum was not used in any case, but sulfapyridine was used in three and sulfanilamide in six of the fatal cases."

E. H. Roche and J. E. Caughey[36] report two cures with M. & B. 693 which they report because then can trace no record of influenzal meningitis treated with this drug, a boy aged 17 months and a girl 12 years of age. They conclude: "In view of the almost uniformly fatal course of influenzal meningitis in children, the recovery of two consecutive patients, one of whom was only 17 months old, cannot reasonably be ascribed to coincidence. Apart from lumbar puncture and blood transfusions, whose inadequacy has been so conclusively proved in the past, the only treatment common to both cases was the administration of M. & B. 693. These considerations, together with the impressions gained from observation of the cases" compel the writers to believe that the good results obtained were pre-eminently due to this drug.

The death of two consecutive patients with influenzal meningitis in my private practice prevents me from sharing the enthusiasm of Roche and Caughey for sulfapyridine. However, its efficacy in the treatment of certain other diseases is not questioned, as we are dealing only with influenzal meningitis.

My discouraging results led me to a study of the cases of influenzal meningitis treated at the Charity Hospital in New Orleans during recent years. In 1936, Tripoli[37] stated that during the ten years 1925-1934 inclusive, there had been 20 cases of influenzal meningitis in the hospital. All were fatal.

The hospital records show that from 1935-1939 inclusive, 27 cases of influenzal meningitis were treated: none in 1935; in 1936, one; 1937, seven; 1938, 11; 1939, eight, making a total of 47 for the fifteen years 1925-1939, with no recoveries. During the last five years, the oldest patient treated for influenzal meningitis was 11 years, and there were 17 patients under two years of age.*

During 1937 and 1938, sulfanilamide was used in most instances. In 1939, eight patients were treated, all with sulfanilamide. In one case, sulfanilamide had been administered for three weeks before admission and meningococcic antitoxin was also given. In one case, sulfanilamide was temporarily substituted for sulfapyridine. In all cases the spinal fluid was frequently drained, the customary supportive regimen of transfusions and infusions was given, but, regardless of the route of entrance, intraspinally, intramuscularly, or intravenously, sulfapyridine failed to save a single patient (table 3).

---

*I am very grateful to Dr. Wright, Director of the New Orleans Charity Hospital, for permission to examine the records, and to the clerks of the record library for their courteous assistance.

TABLE 3

INFLUENZAL MENINGITIS IN NEW ORLEANS CHARITY HOSPITAL

Year	1925-1939		Prontosil or sulfanilamide administered	Sulfapyridine administered
	Total cases treated	Deaths		
1925-1934 (Tripoli)[37]	20	20		
1935	0			
1936	1	1		
1937	7	7	4	
1938	11	11	10	
1939	8	8	1	8
	47*	47	15	8

*It should be remembered that this 100 per cent mortality does not include the collective experience of all New Orleans physicians in the treatment of influenzal meningitis. In addition to several cured cases mentioned in the above text, and others unreported, is the cured case of Isidore Cohn in 1935, an 11 year old boy treated by daily spinal taps, frequent blood transfusions, administration of magnesium sulfate by rectum for dehydration, a dry diet and the use of hypnotic drugs to overcome restlessness.[50]

My two cases were in children six months and 18 months of age. Both gave a history of previous upper respiratory infection, the younger infant having had a paracentesis of both ear drums with little or no suppuration following it. The blood and spinal fluid findings were as usual in these cases. Direct stained smears from the spinal fluid showed gram-negative pleomorphic bacilli. Cultures on tryptose blood agar grew in characteristic dew drop colonies and *B. haemophilus influenzae* were recovered.

The treatment in both cases was: (1) Frequent spinal drainage, and late, in the younger child, cistern and ventricular taps; (2) sulfapyridine, in amount of one grain per pound of body weight in divided doses, was begun as soon as the diagnosis was made; (3) frequent small blood transfusions. The older child was given the blood serum of a donor who had given serum to a recovered case of influenzal meningitis treated but unreported by Socola. (4) Autogenous vaccine was given the younger baby in increasing doses on alternate days.

The six months old baby lived exactly two months and the 19 months baby three weeks after onset. Autopsy on the younger baby showed thickening of the meninges, a thinning out of the cortex, flattening of the convolutions, dilation of the ventricles to four or five times their normal size and containing a large amount of flaky, purulent material. The right lung revealed a grayish patch of bronchopneumonia in the lower lobe. Both liver and spleen gave evidence of toxic inflammation. No autopsy was permitted in the other case.

This total of 18 infants treated with sulfapyridine with five cured, 72.2 per cent mortality, is far too small to justify conclusions. No age was stated in three cases; ten were under two years; two cured cases were under two, another between two and three (table 4).

TABLE 4

PATIENTS WITH INFLUENZAL MENINGITIS TREATED WITH SULFAPYRIDINE

Roche—boy, 17 months: M. & B. 693, L. P., no serum[36]		Cured
Roche—girl, 12 years: M. & B. 693 and proseptasine, no serum[36]		Cured
Hamilton—girl, 2 years; no serum[35]		Cured
Waring—boy, 22 months; no specific serum[23]		Cured
Waring—girl, 6 years		Cured
Waring	Died	
Waring	Died	
Waring	Died	
Aléman—girl, 19 months	Died	
Aléman—girl, 6 months	Died	
Charity Hospital—3 months	Died	
Charity Hospital—11 months	Died	
Charity Hospital—7 months	Died	
Charity Hospital—2 years	Died	
Charity Hospital—2 months	Died	
Charity Hospital—5 months	Died	
Charity Hospital—9 months	Died	
Charity Hospital—5 years	Died	
10 under two years	13 Died	5 Cured*

*Two of the five cures were under two years of age, and a third was between two and three.

Since the fatal termination of my cases, I have learned from John A. Toomey[38] of his four unreported cured cases of influenzal meningitis. Even though the patients were all over four years of age, four successive cures are decidedly noteworthy. His treatment consisted of one dose of sodium sulfapyridine monohydrate intravenously as soon as the diagnosis was made, followed by sulfapyridine treatment for several days, or longer if necessary. In addition, he used continuous spinal fluid drainage on the Kubie plan[39], small blood transfusions on alternate days, and autogenous vaccine in increasing doses.

The wisdom of continuous spinal fluid drainage is suggested by the warning of L. E. H. Whitby,[40] who says: "It is essential to realize that the sulphonamide drugs will not disperse a collection of laudable pus. The drugs are quite inactive when bacteria are in a medium consisting of pus."

As Jenks and Radbill[6] said: "At autopsy the finding is uniformly a massive and extensive purulent exudate, especially heavy at the base of the brain but often extending in less degree over both hemispheres." It would seem most logical, then, to do a continuous spinal fluid drainage (with continuous hypotonic saline intravenous infusion) in the hope of preventing the accumulation of pus which eventually causes death.

Brown et al.[28] report cure of a case of influenzal meningitis in a six year old child by continuous spinal drainage, mastoidectomy and sulfanilamide; while in 1935, Faust and Stein[41] reported cure of an eleven months' old child by spinal drainage and transfusion. Martmer and Davidson[42] had cured a two months' old baby with influenzal meningitis and spinal block drainage by laminectomy. But here again, as in every method of treatment, we find reports of fatalities. Neal et al.[5] in 1934 stated: "We have employed this method of drainage (Kubie's forced drainage of cerebrospinal fluid) in the last ten cases in our series, with apparent benefit in three of these." But they were not among the cured cases.

It is interesting to note that Calvin J. Weaver[43] describes an apparatus whereby a needle, filed off to allow about ½ inch protrusion, is held in place by a scarf pin guard in reverse position, protected by a metal disc and a rubber kneeling pad cushion, on which he says the "patient can lie with comfort in any position."

THE SULPHONAMIDE DRUGS

Whitby[40] (England), Penington[44] (Australia) and Yampolsky[45] (Atlanta, Ga.) whose respective articles appeared in January, 1940, point out that the various drugs of the sulphonamide group are very closely related in their therapeutic action, although in potency, toxicity and solubility there is some difference. If this is true, we may now add one item to the statistics of the treatment of influenzal meningitis. In 1935, analyzing all reported cures before that time (44 in number) Faust and Stein[41] concluded, "The only common denominator in the treatment of these recovered cases has been repeated lumbar punctures." This rule still holds. But if we consider the cures reported in the last three years which have been treated since the introduction of the sulphonamide drugs, we find an additional common denominator in their treatment, namely, administration of one or more of the sulfphonamide drugs.

Instead of enthusiastically drawing optimistic conclusions, however, it is well to consider that not only the cured cases, but the fatal ones, received varying doses of the same drugs.

Every form of treatment reported in the literature is discounted by those who have seen failures, and by actual statistics where a large number have been reported.

In weighing the benefits of chemotherapy in influenzal meningitis, let us bear in mind that the value of the sulphonamide group seems to be as adjuncts rather than specific form of treatment.

CASE REPORT NO. 1

K. L., six months old white girl, was first seen October 25, 1939. Fever and restlessness were the outstanding symptoms. A few days later, both ear drums were opened and little if any suppuration followed. On November 7, 20 c. c. whole blood were given subcutaneously. The fever had continued and ranged between 100° and 104°. There was marked irritability. Physical examination remained essentially unchanged until November 8, when the neck became stiff and the anterior fontanel tense, when she was admitted to the hospital.

On admission there was a white cell count of 25,250, 89 per cent of which were polymorphonuclear leukocytes; the red cell count was

3,220,000. The white cell count showed a tendency to decrease, but rose again to 26,000 on December 13. Urinalysis was negative throughout. Spinal puncture was done on admission and daily until every attempt at drainage in the lumbar region was unsuccessful. The fluid showed a cell count of 2,500 white cells, most of which were polymorphonuclears, globulin 3 plus, chlorides 470 mg. per 100 c. c. and no sugar. On direct smear many gram-negative pleomorphic bacilli were seen. A culture taken was found positive for *B. haemophilus influenzae*.

Sulfapyridine, 5 grains every four hours, was begun on day of admission. As soon as it could be obtained, autogenous vaccine in increasing doses was given on alternate days. Supportive treatment, consisting of nutritive enemas, blood transfusions and infusions, was used when indicated. X-ray of the mastoids was negative. After sufficient drainage, 5 c. c. of convalescent serum were given intrathecally. Sulfapyridine was discontinued for several days due to vomiting, but was resumed later, and 8 grains given every four hours by rectum.

Spinal tap failing on December 3, a cistern puncture was done and about 35 c. c. of cloudy fluid removed. An attempt to do a third cistern puncture was unsuccessful. By this time the patient had developed a hydrocephalus. Ten ventricular punctures were done, the first on December 5. The next day, 10 c. c. of convalescent serum were injected into the ventricle and this procedure was repeated several times.

During the last week of illness the course was steadily downward. The temperature ranged between 102° and 106°. There was bilateral strabismus and rather marked opisthotonus. Toward the end, muscular twitchings were frequent. Death occurred December 26, 1939.

Autopsy: The anatomic and final diagnoses were: (1) Influenzal meningitis with secondary pneumococcal infection; (2) terminal bronchopneumonia (influenzal and pneumococcal); (3) toxic hepatitis and (4) toxic nephritis. The brain was under marked pressure, the meninges thickened, the convolutions flattened and all the vessels injected. On opening the lateral ventricles both were found markedly distended to about four or five times their normal size. Their contents consisted of turbid fluid with flakes of purulent material. An exudate partly covered the wall of both ventricles. The foramina from the lateral ventricles to the third ventricles were markedly dilated. The third and fourth ventricles were also distended and contained the same character of fluid found in the lateral ventricles although the aqueduct of Sylvius was closed. There was no evidence of infection in the mastoids.

CASE REPORT NO. 2

M. M., a 19 months old white girl, was first seen on the morning of December 29, 1939. During the two weeks preceding the visit, she had a slight cough and cold. On the night of December 28, the child began vomiting and became extremely irritable. Several loose stools with the aforementioned vomiting were attributed to food indiscretion. When seen she had a temperature of 105.8°, was drowsy, and became irritable if disturbed. A generalized convulsion occurred during the examination.

The family history is interesting, in that one brother had completely recovered from meningococcic meningitis three years previously and a cousin from poliomyelitis two years previously, also with complete recovery.

On admission to the hospital immediately following the convulsion, physical examination revealed a well developed female child who cried and became quite irritable when disturbed. The temperature was 105°, pulse 120, and respirations 45. All other findings were normal. The blood showed an 11,750 white cell count, 80 per cent of which were polymorphonuclear leukocytes. The urine was negative.

The following morning the temperature rose to 106°, and vomiting was persistent. Sulfapyridine, grains 4, every four hours, was started. There was slight but definite resistance of her head to anterior flexion. A spinal tap performed that day yielded spinal fluid which had a ground-glass appearance but was not under increased pressure. There were 2,600 cells, 87 per cent of which were polymorphonuclears. The globulin was 3 plus. Many pleomorphic gram-negative bacilli of varying lengths were found on smear. Sulfapyridine therapy was continued. Nutritive enemas, repeated blood transfusions and spinal drainage with injection of blood serum intrathecally were instituted. The donor had previously given his blood to another child who had recovered from influenzal meningitis (Socola's unreported case). By January 6, 1940, the temperature had lowered its range to 100° to 103°. The child seemed more alert and played with her mother. The spinal fluid was clearer, the cell count being 200 with the globulin only slightly increased. Sugar was 58 mg. and the chlorides 687 mg. per 100 c. c.

Three days later, spinal puncture yielded 45 c. c. of slightly turbid fluid under markedly increased pressure. The count was 842. Smear showed an occasional gram-negative bacillus. The culture was reported positive for *B. haemophilus influenzae.*

During the next few days the child seemed to improve somewhat, but on January 14 the fever began ranging between 103° and 105°, and the course was gradually but steadily down grade. On January 20, some twitchings of the hands and body were noticed. The spinal cell count was 250 with a 1 plus increase in globulin. The next day several generalized convulsions occurred and the patient's condition became critical. Muscular twitching continued until the following day, January 22, when the temperature shot to 107°, and the child expired. Permission for an autopsy was refused.

REFERENCES

1. Jones, Jos.: History of Cerebro-Spinal Meningitis, Medical and Surgical Memoirs, vol. 1; p. 420. (Quoted by R. Matas, History of Medicine in Louisiana, unpublished.)

2. Bloom, Chas. J.: Influenzal meningitis is amenable to treatment, New Orleans M. & S. J., 83 :455, 1931.

3. Wilkes-Weiss, D., and Huntington, R.: Treatment of influenzal meningitis with immune serum, J. Pediat., 9 :462, 1936.

4. Rivers, T. M.: Influenzal meningitis, Am. J. Dis. Child., 24 :102, 1922.

5. Neal, Josephine B., Jackson, H. W., and Appelbaum, E.: Meningitis due to the influenza bacillus of Pfeiffer (*Haemophilus influenzae*), J. A. M. A., 102 :513, 1934.

6. Jenks, H. H., and Radbill, S. X.: Influenzal meningitis, Arch. Pediat., 48 :1, 1931.

7. Hart, A. P.: Influenzal meningitis, Canad. M. A. J., 27 :163, 1932.

8. Ward, H. K., and Fothergill, L. R. D.: Influenzal meningitis treated with specific antiserum and complement; report of 5 cases, Am. J. Dis. Child., 43 :873, 1932.

9. Tokunaga, M.: Clinical and bacteriological observations on influenzal meningitis, J. Pediat (Tokyo), 430 :425, 1936, (Reviewed by Kato, Chicago, Am. J. Dis. Child., 53 :223, 1937.)

10. Bridgeman, M. L., and Bissett, R. A.: Influenzal meningitis; recovery in an 8-year-old child, Northwest Med., 37 :388, 1938.

11. Silverthorne, N., Fraser, D. T., Snelling, Chas. E.: Influenzal meningitis, J. Pediat., 10 :229, 1937.

12. Huntington, R. W., Jr., and Wilkes-Weiss, D.: Influenzal meningitis: a study of its clinical characteristics based on an analysis of 54 cases from the records of the St. Louis Children's Hospital, J. Pediat., 9 :449, 1936.

13. Pittman, M.: Action of type specific *H. influenzal* antiserum, J. Exper. Med., 58 :683, 1933.

14. Marie, J., and Pretet, H.: Meningite aigue à bacille de Pfeiffer. Bacteriotherapie intra-rachidienne, Bull. Soc. Ped. de Paris, 25 :427, 1927. (Quoted by Gibbens (47)).

15. Alexander, H.: Type B anti-influenzal rabbit serum for therapeutic purposes, Proc. Soc. Exper. Biol. & Med., 40 :313, 1939.

16. Fothergill, LeRoy D.: *Haemophilus influenzae* (Pfeiffer bacillus) meningitis and its specific treatment, New England J. M., 216 :587, 1937.

17. Neal, J.: Treatment of acute infections of the central nervous system with sulfanilamide, J. A. M. A., 111 :1353, 1938.

18. Spekter, L.: Influenzal meningitis with recovery, use of anti-influenzal serum, Am. J. Dis. Child., 51 :614, 1936.

19. Young, R. H., and Moore, Clyde: Influenzal meningitis. Report of a case treated with anti-influenzal serum and sulfanilamide, Arch. Pediat., 55 :282, 1938.

20. Neal, J.: Treatment of meningitis, Penn. Med. J., 42 :1019, 1939.

21. Sappington, S. W., and Favorite, Grant O.: Sulfanilamide and meningitis, Ann. Int. Med., 13 :576, 1939.

22. McIntosh, R., Wilcox, D. A., and Wright, F. H.: Results of sulfanilamide treatment at the Babies' Hospital, New York City, J. Pediat., 11 :167, 1937.

23. Waring, J. I.: Influenzal meningitis treated with sulfapyridine, report of two cases with recovery, J. So. Carolina M. A., 35 :284, 1939.

24. Jones, H. W.: *H. influenzae* meningitis, Brit. M. J., 2 :797, 1937.

25. Teggart, B.: Influenzal meningitis treated with soluseptasine and lumbar puncture; recovery, Brit. Med. J., 1 :1365, 1938.

26. Folsom, Thos. G., and Gerchow, K.: Influenzal meningitis successfully treated with sulfanilamide, W. Virginia M. J., 34 :254, 1938.

27. Gordon, C. H.: Case of mastoiditis and influenzal meningitis; recovery, Maine M. J., 29 :65, 1938.

28. Brown, John E., Jr., Emswiller, Herbert D., and Reck, Lawrence E.: Influenzal meningitis with recovery. Treatment with mastoidectomy, sulfanilamide and continuous spinal drainage, Arch. Otol., 29 :860, 1939.

29. Basman, Jack, and Perley, Anne: Report of patients treated with sulfanilamide at St. Louis Children's Hospital, J. Pediat., 11 :212, 1937.

30. McQuarrie, Irvine: Report of cases treated with sulfanilamide (prontosil and prontylin), J. Pediat., 11 :188, 1937.

31. Bachhuber, H. A.: Meningitis caused by *Bacillus influenzae*. Report of a case, Wisconsin M. J., 37 :399, 1938.

32. Taylor, H. W.: Treatment of a case of influenzal meningitis with immune serum and sulfanilamide, Arch. Pediat., 55 :131, 1938.

33. Case Records of the Massachusetts General Hospital, New England J. M., 219 :443, 1938.

34. Long, P. H., and Bliss, E. A.: Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds, Macmillan Co., 1939, p. 212.

35. Hamilton, T. R., and Neff, Frank C.: Influenzal meningitis with bacteriemia treated with sulfapyridine; recovery, J. A. M. A., 113 :1123, 1939.

36. Roche, E. H., and Caughey, J. E.: Influenzal meningitis treated wtih M. & B. 693, report of two cases, Lancet, 237 :635, 1939.

37. Tripoli, Carlo J.: Bacterial meningitis. Comparative study of various therapeutic measures, J. A. M. A., 106 :171, 1936.

38. Toomey, John A.: Personal communication.

39. Kubie, L. S., and Retan, Geo. M.: Forced drainage of cerebrospinal fluid; its experimental basis, technic of clinical application and indications and contraindications, J. A. M. A., 101 :354, 1933.

40. Whitby, L. E. H.: Use and abuse of chemotherapeutic agents of the sulfanilamide group, Practitioner, 144 :1, 1940.

41. Faust, O. A., and Stein, Robert: Influenzal meningitis treated by forced spinal drainage and transfusion, Arch. Pediat., 52 :743, 1935.

42. Martmer, E. E., and Davidson, E. C.: Surgical treatment of spinal block; report of a case of Pfeiffer's bacillus meningitis treated by open drainage, J. Michigan M. Soc., 30 :936, 1931.

43. Weaver, J. Calvin: A simple apparatus for continuous drainage of the spinal fluid in meningitis and other cerebral conditions, J. M. A. Georgia, 28 :273, 1939.

44. Penington, G. A.: Use of sulfanilamide in bacterial infections, M. J. Australia, 1 :113, 1940.

45. Yampolsky, J.: The use of sulfanilamide and sulfapyridine in pediatric practice, J. M. A. Georgia, 29 :9, 1940.

46. Hageman, P. O.: Clinical experience in the use of sulfanilamide at New Haven Hospital, J. Pediat., 11 :195, 1937.

47. Gibbens, J.: Influenzal meningitis with report of two cases, Lancet, 1 :291, 1931.

48. Johnson, F. C.: Influenzal meningitis; report of recovery, J. M. Soc. New Jersey, 29 :311, 1932.

49. Silverthorne, N., and Brown, A. with the technical assistance of Johnstone, W. M., and Walker, A.: Influenzal meningitis, J. Pediat., 16 :456, 1940.

50. Cohn, Isidore; Influenzal meningitis, Arch. Surg., 34 :398, 1937.

COORDINATION OF ANTITUBERCULOSIS ACTIVITIES*

JULIUS LANE WILSON, M. D.†
NEW ORLEANS

In response to the interest of individuals and organizations, various antituberculosis agencies have grown up around us. With their diverse aims and methods they are like the pieces of a puzzle dumped on a table, scattered or overlapping, leaving big gaps, and, at the same time, covering common areas. There is a growing realization that these activities should be coordinated and fitted together in a plan. This idea comes at a time when all factors are ripe for its accomplishments. The Federal government is working out plans for aid to states in provision for the sick, and, unless something is done locally, may dominate in control. The State government only awaits a feasible plan to do something more definite against tuberculosis. It has laid the foundation in its Board of Health, Tuberculosis Division. The various private agencies are demanding a part in a coordinated, state-wide campaign to control tuberculosis. As in other states, the general medical profession should be aroused to have not only the responsibility for individual cases, but also a voice in the direction which plans for tuberculosis control will take in Louisiana.

We may first recall briefly the evolution of the present anti-tuberculosis activities. Here, as in other countries and states, private sanatoria have been the first to develop. Then public sanatoria have been built, largely due to the stimulus of unofficial agencies, such as the Louisiana Antituberculosis League, the Antituberculosis League of East Baton Rouge Parish, Shreveport, and Monroe. The State has followed by providing beds for the tuberculous in one of these sanatoria and in the Charity Hospitals. At the same time, during the past twenty years, there has been a change from the camp, or health "shack" type of construction to the modern fireproof type of institution which reflects the changing medical opinion as to the best methods of treatment of tuberculosis. The number of beds provided in the State has grown from none to 709. In connection with the hospitals and sanatoria, clinics for tuberculosis have been started to care for the ambulant patients before and after hospitalization. As in other places, it has been found wise to consider tuberculosis as a disease of families or households.

Involving as it does the well-being of entire families, usually in the lowest income groups, tuberculosis calls for care by other agencies. The Department of Public Welfare is called upon, since it has become a principle that the family in which there is a case of tuberculosis needs full financial relief to prevent the development of other cases. Moreover one of the breadwinners is frequently the original victim of the disease. Tuberculosis in the home also calls for the attention of public health nurses in the cities and in the parishes.

THE PRESENT SITUATION

What is the present situation in Louisiana with regard to anti-tuberculosis agencies and facilities?

(A) First, there is a continuing shortage of *beds* for the care of tuberculosis. There are 709 beds as compared with 1,453 deaths in 1938, a ratio of 0.48. The minimum standard is one bed per annual death; and the United States as a whole has 1.4 beds per annual death. The Louisiana State Tuberculosis Commission, consisting of the President of the State Board of Health, the Governor, and seven members appointed by the Governor, administers the Greenwell Springs Sanatorium in East Baton Rouge Parish. This is financed by funds appropriated by the Legislature, presumably from the proceeds of the kerosene tax designated for the care of tuberculosis. The sanatorium has a capacity of 111 patients, most of whom are white. Admission is limited to two patients from each parish except East Baton Rouge. There is a long waiting list (259 cases) and a small turnover (70 admissions and 29 discharges in 1938). Plans have been hastily drawn for a 400 bed addition to this institution. The Tuberculosis Commission does no other work in the State. Two-thirds of the kerosene tax collections have remained unappropriated since its enactment in 1934.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 22, 1940.

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana.

The Charity Hospital of Louisiana at New Orleans has had the Dibert Memorial pavilion of 300 beds for white cases and the Breaux pavilion for 60 colored patients. Until the new Charity Hospital building was occupied, three wards of the Dibert building were used for tonsillectomy cases; all beds are now used for tuberculosis. The former Nurses' Home was to be rehabilitated to accommodate 200 colored patients, permitting the demolition of the wooden Breaux shacks. Lack of funds has recently reduced this facility to 90 beds. Plans are being drawn for a large tuberculosis unit connected with the Chartiy Hospital to be erected on some as yet undetermined site in or near New Orleans. The Charity Hospital also operates tuberculosis clinics for white and colored outpatients in the Dibert and Breaux buildings.

The Charity Hospital of Shreveport has closed its wards to cases of tuberculosis for the past five years. The Pines Sanatorium, with separate establishments for 50 white patients, 16 children, and 50 colored patients, is under the auspices of the Shreveport Tuberculosis League. It is part pay and part free; and it has not been filled to capacity for lack of funds. The G. B. Cooley Sanatorium at Monroe has been recently opened with a full-time medical director and a capacity of 48 patients. This sanatorium is supported by a tax upon property in the Parish. It is under the auspices of the Monroe Tuberculosis League; and it is open only to residents of Ouachita Parish. It already has a waiting list. The Orleans Anti-tuberculosis League Hospital in Gentilly was constructed for 100 beds. It is supported by private charity and the sale of local Christmas Seals. There have never been enough funds to operate this hospital to capacity, to equip it properly, or to finance the debt incurred in building it. The average number of patients is between 30 and 50. There have been no facilities for any treatment except bed rest.

(B) *Clinics* for the after-care of discharged patients, for the diagnosis of new cases, including contact examinations, and, in some instances, for the administration of therapeutic pneumothorax, have developed in connection with all of the above institutions. The Orleans Anti-tuberculosis League with the financial support of the New Orleans Community Chest operates an excellent clinic in Gentilly. In 1939, 2,639 patients made 6,991 visits to this clinic and 237 new cases of tuberculosis were discovered. The nurses from this one clinic made 5,600 home visits in New Orleans during the same year. No pneumothorax cases are handled in this clinic. The Charity Hospital clinics have been instituted within the past two years. The majority of patient visits are for pneumothorax refills, as there are 195 white and 70 colored patients attending these clinics with ambulant pneumothorax. However, 394 new white patients and 181 new colored patients were diagnosed last year in these clinics. At the Touro Infirmary there is a clinic for ambulatory pneumothorax. About 50 patients make 300 to 400 visits annually to this clinic for pneumothorax treatment. A bed is provided for the initial treatment only, or for emergencies that may arise. A similar clinic of approximately the same size is operated at the Flint-Goodridge Hospital for the colored pneumothorax patients.

The Louisiana State Board of Health, in addition to collecting vital statistics on tuberculosis, has put into operation a mobile diagnostic clinic under the direction of Dr. R. Alec Brown. This covers the rural parishes of the State to find cases of tuberculosis. Such a clinic is an essential part of the antituberculosis program. I trust that Dr. Brown will tell us further about its method of operation and the results so far accomplished. Public health units have been organized in 42 parishes. These can very well function in the supervision of cases of tuberculosis in those parishes.

(C) The Department of Public Welfare has undertaken to supply *relief,* in so far as funds permit, to the tuberculous and to their families. They are given the full allowance of relief and usually priority after medical diagnosis and investigation by the Department of Public Welfare worker. While this is admirable in principle, it frequently fails in practice. On the one hand, cases without tuberculosis or with inactive diseases sometimes take advantage of the added relief; on the other, limited funds will not always allow prompt aid to seriously ill patients.

(D) As to the *non-official agencies,* the situation in Louisiana is also chaotic. We annually call upon the public to support two rival Christmas Seals. Due to a disagreement as to policies, the Orleans Antituberculosis League split off from the National and State organization. It devotes the proceeds of its annual "Pelican Seal" sale to the support of the sanatorium under the motto: "Hospitalization is the Best Education." The State organization, the Public Health and Tuberculosis Association of Louisiana, finding its funds grossly inadequate to cover a fraction of the need for beds, follows the policy of the National Tuberculosis Association. The proceeds of its Seal Sale go to education of the public and the medical profession, with concrete measures, such as the annual Early Diagnosis Campaign, direct advertising, and movies of the tuberculin tests in schools.

PLANS FOR COORDINATION

The necessity for a coordinated plan for tuberculosis control in Louisiana is obvious. The problem cannot be met by simply constructing larger hospitals. Certain states which have taken this costly but thought-sparing course have discovered that tuberculosis is a chronic disease. For example, with a waiting list of 500 for the State sanatoria, the provision of 750 more beds did not eliminate the waiting list for more than a year or two. They neglected to provide clinics and nursing services to allow the beds to be used more efficiently as patients were sent home earlier for ambulant care and follow-up. We have no desire to repeat the mistakes of other states and to be saddled with the maintenance of increasing numbers of patients in expensive hospital buildings.

Last year a tentative plan was worked out by a committee of physicians at the request of one of the State agencies. Dr. Perkins has kindly permitted me to draw upon this report for the following outline:

(A) *Direction.* All antituberculosis work of a public health nature should be under the Louisiana State Board of Health. This Board, in turn, should be under closer control by the Louisiana State Medical Society with a special Tuberculosis Committee of the Louisiana State Medical Society to advise it. The present Tuberculosis Commission should be reorganized to supervise all of the public facilities for tuberculosis. The Commission should set up standards for the care of the tuberculous, determine policies, and draw up coordinated plans, undertake epidemiologic studies, and have oversight of all admissions to tuberculosis facilities in the State and their records. It should coordinate the work in this field of the Board of Health, the Hospital Board of the State and the Welfare Department.

Under the Tuberculosis Commission and as its executive there should be a Medical Director or Tuberculosis Comptroller for the State. This should be a full-time man trained in tuberculosis, including hospital and clinic direction, and possessing general organizing and directing ability. This position is the key to the whole problem of coordinating the agencies of the whole State.

(B) *Beds.* Hospital beds for tuberculosis should be distributed through the State on a district basis. This calls for five or six districts; e. g., New Orleans, Baton Rouge, Lake Charles, Alexandria, Monroe, and Shreveport, as logical centers. The parish is too small a unit and the state is too large because of the difficulties of transporting sick patients over long distances. Wherever possible, existing facilities should be utilized. It is estimated that approximately 750 more beds are needed, exclusive of New Orleans, or a total of a thousand more beds for the State. In addition a definite provision should be made in the general hospitals of each district for a small number of beds for cases undergoing thoracic surgery. Each district hospital with its clinics should be under the direction of a full-time superintendent. There should be one laboratory director for the laboratories of all the tuberculosis hospitals. There should also be a thoracic surgeon retained as consultant to direct or perform the necessary surgical operations in all institutions. At least one district tuberculosis hospital should be a center for training personnel,—physicians, nurses, and attendants.

(C) *Clinics.* Outpatient clinics for diagnosis, examination of household contacts, follow-up and treatment of discharged patients, should be an integral part of the hospital in each district. Where possible, these clinics should be in the buildings of the institution. In places where the hospital is some miles outside of the city, it may be better to have the clinic in town. This necessitates separate provision for treatment (pneumothorax) and at least a fluoroscope for x-ray equipment. In addition to the central clinic there should be outlying weekly or biweekly clinics in other towns more than 25 miles from the center. These would not be for treatment as a rule. For x-ray they might depend upon the facilities of local physicians by arrangement about rates, or refer patients to the district hospital, or utilize visits of the traveling clinics. The staff of each hospital should be responsible for supervising all of the clinics of that district. Properly qualified practicing physicians from the parishes of each district should be appointed as visiting physicians to the hospital and clinics and paid for this work.

At least one traveling chest clinic and possibly two should be maintained under the direction of the Medical Director and a special assistant, the Director of Clinics. This mobile unit, provided with x-ray apparatus, would serve several functions. It would supplement the outlying district clinics in rural areas for case-finding and examination of all pulmonary diagnostic problems referred by the local physicians. It would be used to make tuberculosis surveys of schools, normal schools, and special industrial groups.

(D) *Nurses.* Through the present Parish Health Units, Department of Public Welfare, and local visiting nursing organizations, nurses to maintain contact between the clinics and the patients' homes should be provided. These nurses should attend the sessions of the tuberculosis clinics and carry out the follow-up of active cases and their contacts at home. The nursing staff of each district hospital should, if possible, detail nurses to accompany the physician to each clinic. Each center should be a postgraduate training school for nurses in the bedside care, ambulant care, and public health supervision of the tuberculous.

(E) *Records.* The office of the Medical Director should be provided with files of all cases diagnosed and treated in the State. Such records would serve as the basis for direction of the plan as a whole in the future and for epidemiologic study of the disease in this State. A central clearing house for records would obviate much duplication of effort.

(F) *Relief.* It is recognized that tuberculosis in a household calls for special financial relief in a large percentage of cases. Close cooperation between the Department of Public Welfare and the Tuberculosis Commission is, therefore, necessary in this matter to prevent both neglect of needs and overlapping of unnecessary expenditures. Provision should be made so that future changes in the administration of relief do not cut off assistance to the families of tuberculous patients. In the absence of compulsory hospitalization, some such arrangement is essential to make it possible and advantageous for patients to go under treatment.

SUMMARY

Such a plan for the control of tuberculosis is not a Utopian scheme with no precedent. Other states have set up, or are setting up, similar plans with success. Nor is the money lacking in this State to undertake the planned control of this disease. The saving of money represented by prevention of disability and restoration of life and working ability is incalculable. An integrated plan, by providing the proper clinics and nurses, will save tremendously in the provision of sufficient beds and allow those now in use and projected to be utilized efficiently. If Federal funds become available for construction, we can guarantee the maintenance. In the kerosene tax and in enabling legislation, we have the necessary sinews of war.

The heart of any successful plan is the man at its center; in this case, the medical director. Careful selection of the right man by a revitalized non-political Tuberculosis Commission prepared to back him up in real control of tuberculosis would be the major step toward attainment of our goal, the coordination of antituberculosis activities in Louisiana. Another opportunity like the present is not likely to occur. The State Medical Society should take action to place itself in an advisory position to the incoming Governor in this matter, as in all pertaining to the health of the people of Louisiana.

DISCUSSION

Dr. R. Alec Brown (New Orleans): This critical review of the present status of tuberculosis agencies and activities in Louisiana leaves no doubt of the need for an improved plan of attack on the problem of tuberculosis control in our state through coordination of activities.

Many of the shortcomings of our state program were listed by Dr. L. L. Lumsden in his report on tuberculosis in Louisiana made in 1936. Dr. Wilson, however, has been more specific in his recommendations and has made it clear that permissive legislation and enabling acts make it possible for the state to carry out the program he has described.

Serving as a state-wide consultant to physicians and health departments in the development of tuberculosis control work, and conducting a travelling consultation case-finding clinic have given me an opportunity to see what advantages could be expected from the suggested plan.

In the first place, welfare department rolls are cluttered with supposed tuberculous patients and their dependents who have never had a confirmatory diagnosis and classification of their disease. Cooperative use of our official case-finding facilities would purge these lists and release much needed funds for legitimate cases of tuberculosis and their dependents.

Using our state clinic facilities for the selection of suitable patients for treatment in our limited sanatorium beds would insure a better type of medical work, and what is more important, would enable a quicker turnover of patients. It is true that for such an ambulatory program to be successful we must develop better facilities for the follow-up care of sanatorium discharged patients.

A state tuberculosis record system would enable an exchange of records between hospitals, clinics, local health departments and would insure far better statistical records on tuberculosis.

In many states a plan of state subsidy for county or district hospitals has made it possible for these smaller institutions to intensify their teaching, case-finding and follow-up programs under the supervision of the state health department.

The need for provisions and facilities for major thoracic surgery is shown by the situation that exists in Shreveport. The local sanatorium there is not equipped with a major operating room and the Charity Hospital refuses to admit tuberculous patients for thoracoplasty work. Several local surgeons will contribute their services for this type of work, but two hundred dollars or more must be raised for private hospitalization for each patient requiring this procedure.

Additional sanatorium beds are certainly needed in Louisiana, but we should first develop a better coordinated tuberculosis program before we ask for these beds.

Dr. Harvey Perkins (New Orleans): In connection with Dr. Wilson's paper, we feel that it will be advisable for this Section on Public Health to present a resolution to the State Society, asking the cooperation and participation of the State Society in this general problem. The resolution reads, as follows:

WHEREAS the control of tuberculosis is a medico-social problem of particular interest to the medical profession and must continue to be guided by the principles of medical practice

AND WHEREAS the combined activities of many public, semi-public and private agencies are required in this control

BE IT RESOLVED that the Section on Public Health and Sanitation of the Louisiana State Medical Society be recorded as urging that there be set up a state-wide Committee on Tuberculosis by the Louisiana State Medical Society

AND BE IT FURTHER RESOLVED that the Committee on Tuberculosis be charged with the duty of acting as an advisory committee to the Louisiana State Department of Health in all matters pertaining to the prevention, care and cure of tuberculosis and that it shall act as a critical authority of the Louisiana State Medical Society in so far as it may be authorized by the Louisiana State Medical Society to do so on all programs and activities of all semi-public and private organizations or individuals working in the field of tuberculosis.

I request that we act upon this resolution, and that the chairman carry it to the House of Delegates at the meeting on Wednesday to be voted upon by them. I move that this resolution be adopted by this section for presentation to the State Society at the meeting of the House of Delegates.

(Motion put to a vote and carried).

TYPHUS FEVER IN LOUISIANA*

J. H. MUSSER, M. D.[†]
NEW ORLEANS

Typhus fever is a disease which is receiving interest because of the fact that, first observed in this country thirty years ago, it is becoming more and more prevalent throughout the United States. It has been reported from all of the states in the Union except Maine, New Hampshire, Vermont, Rhode Island, Wisconsin, and Michigan. It is becoming more frequently observed not only in the United States, but particularly in the Southern states, involving not only the urban population but also the rural. Slightly over ten years ago the disease was of such rarity that the cases were thought worthy of reporting in the literature; now they are looked upon as an every day affair. As a matter of fact the late Dr. W. C. Rucker reported the first case of typhus fever to arise in Louisiana. I[1] reported the second case of a patient who came into the Charity Hospital in May, 1929. Last year there were 115 cases reported to the Louisiana State Board of Health, Division of Epidemiology. I think this is a very excellent indication of the rapidity with which typhus fever has become an epidemiologic problem and a disease which is becoming rather frequent.

INCIDENCE

The incidence of the disease in Louisiana for the past eleven years was:

Year	Cases
1929	1
1930	0
1931	1
1932	17
1933	11
1934	17
1935	20
1936	12
1937	23
1938	27
1939	115

Probably the best indication of the greater frequency of recognition of this disease and that it is undoubtedly on the increase, lies in the fact that in the Charity Hospital of New Orleans there were only two cases so diagnosed in 1937, in 1938 none, whereas in 1939, in the contagious disease ward, I had the opportunity of seeing 16 cases.

Throughout the world typhus is widely disseminated. According to the United States Public Health Service,[2] of the some 27,000 cases that were reported in 1937 from all over the world, the order of the numerical incidence of the disease was as follows: China, Morocco, Poland, Egypt, Tunisia, Rumania and then comes the United States. In the United States, in 1938, there was a total of 2,294 cases of flea-borne typhus fever officially reported. Many febrile diseases without doubt were misdiagnosed or the cause unrecognized, so that it is quite possible to say in all likelihood there were at least as many more cases again as the total number of cases actually reported. The figures for louse-borne typhus fever, the European and Asiatic types, seem small in comparison to those obtained during the first World War and immediately afterward. It has been estimated that in Russia alone there were 10,000,000 cases of this disease between 1919-22. There were also severe epidemics at this time in Poland, Austria and Germany.

Typhus fever occurs very rarely in the tropics. It is essentially a disease of the colder countries and it occurs most frequently in the winter months in other countries. This is of some interest because Louisiana is a semi-tropical state but the disease is sufficiently serious to have become a public health problem and it occurs both in summer and in winter. However, the typhus of the South is entirely the endemic type.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, April 22, 1940.

[†]From the Department of Medicine, Tulane University School of Medicine, New Orleans.

ETIOLOGY

Although typhus fever has always been looked upon as a louse-borne disorder and one which is dependent upon filth, dirt, lack of body cleanliness and the absence of bath tubs, the flea of a rat has become the important vector in the transmission of the disease in the South. This statement is made to impress again the importance of rat extermination and campaigns against the rat to get rid of this objectionable and dangerous rodent. According to Gordon,[3] 90 per cent of endemic typhus in this country occurs in the states of Alabama, Georgia and Texas. Louisiana has been between two of these areas of endemicity and it is to be expected that the disease will still further increase in this state. Another feature of some interest concerning the etiology of the condition is that the negro is rarely infected, the attack rate being only one-tenth of that of the whites. As with nearly all infectious transmissible diseases, males are more frequently affected than females and adults more likely to have the disease than are children.

The seasonal distribution of typhus in the South is rather interesting. By far the greater number of cases occurs in the late spring and early summer. There is a sharp decline by September and a minimum number of cases is observed in March.

THE RICKETTSIAE

Typhus fever is caused by a micro-organism which is known as *Rickettsiae prowazeki.* It might be of some interest to state that the discovery of the rickettsiae as a cause of a specific, self-limited infectious disease, Rocky Mountain spotted fever, was made by Dr. H. T. Ricketts in 1906. At this time he first transmitted the disease to the experimental animal through the bite of the wood tick. Three years later he described the micro-organism from smear preparations taken directly from the blood both of man and of the laboratory animal, as well as in the tissues of the tick. A year or two later, working with Wilder, he demonstrated that Mexican typhus, tabardillo, was transmitted by the body louse and described the rickettsia in this disease. Ricketts and Wilder also showed that Rocky Mountain spotted fever and typhus, while closely allied, are entirely different diseases. Mexican typhus is a serious and often lethal disease.

Ricketts is one of the martyrs to science who have died as the direct result of the investigative work they were doing at the time. He expired in Mexico in 1910 as result of this disease, evidently transmitted to him while working with typhus patients and typhus organisms. The second portion of the name given to the organism that causes typhus belongs to that of a distinguished German-Polish zoologist, von Prowazek.

The rickettsial bodies are small, gram-negative organisms, which resemble bacteria somewhat but which cannot be grown on bacteriologic media and which are found in the body cells of small invertebrate animals, most of which feed upon the vertebrates. These animalculae include ticks, mites, spiders, lice, bedbugs and midges. Strange to say, of all the arthropods, only the bedbug has never been implicated as a vector, that is, a transmitter of the disease. Despite the ubiquitousness of the rickettsiae, there are only three main groups of these diseases; to wit, typhus, Rocky Mountain spotted fever and tsutsugamushi, the first conveyed by the body louse or the rat flea, the second by the tick, the third by the midge. In spite of the widespread infestation of the arthropods (insects), man seems to be singularly fortunate in escaping disease due to these micro-organisms. On the other hand, a very considerable number of animal diseases may result from the transmission of the rickettsiae to the larger animal through the bite of the original host. In the last few years there have been described other diseases of man, Q-fever and Nine Mile fever, for example, which are probably rickettsial diseases. Incidentally, sometimes the Eastern type of this rickettsial disease is spoken of as spotted fever but this term is so commonly and frequently employed for other diseases that it might be well to drop it.

CLINICAL TYPES

There are two distinct varieties of typhus fever. Although the two are alike in many respects, not only clinically but also having complete cross immunity with each other and being serologically identical as judged by the Weil-Felix reaction, there are certain distinct differences. One is transmitted by the louse, the other by the flea. The former, the louse-borne type, is epidemic in nature, while the flea-borne, the murine type, is sporadic, or endemic. Fleas being more common in summer explains the high incidence of endemic typhus in the United States in these months, whereas lice live and breed in winter, consequently epidemics of typhus are more prevalent in the winter months. According to Dyer,[4] the rat is probably the constant reservoir in the southern United States, transmitting the disease to man by the bite of his dissociated flea. On the other hand, the epidemic type is transmitted from man to man by the human louse. There are certain minor distinctions between the strains of the virus isolated in animals in the two types of typhus. This variation is of laboratory rather than clinical interest.

The endemic type of the disease was recognized first in New York by Brill some forty years ago. Nearly all of his cases were found in Jewish immigrants and it was thought then that the disease represented really a variant of imported classic typhus. This idea, subsequently abandoned, was revived by Zinsser in 1934, who believes Brill's disease is not the endemic typhus of the South but an imported form of the typical European typhus which has appeared in the United States in endemic form.

CLINICAL OBSERVATIONS

Endemic typhus has an incubation period of between seven and fourteen days. While there may be irregular prodromata, in the great majority of cases, the disease strikes suddenly with a chill or chilliness, followed by high fever, marked headache and severe prostration. The temperature rises persistently more or less of a step-ladder ascent and obtains its maximum in five to seven days. The fever is continuous, with remission of 1.25° F., the fastigium (or height of the fever) is maintained for approximately a week and then the temperature falls by lysis in about the same number of days it took to ascend to its peak. The course of the disease is usually around two weeks; sometimes it is 16 to 18 days in duration.

The physical examination is relatively important early in the disease. There is present rather pronounced conjunctival congestion, lacrimation and often photophobia. Associated in a markedly prostrated patient who is mentally apathetic, these findings are suggestive. In five to seven days occurs the characteristic exanthem, that is the rash, which is really of supreme diagnostic importance. The physician probably would not recognize the possibility of typhus being present were it not for this rash.

THE ERUPTION

The eruption appears the fourth or fifth day of the disease, although it may be observed on the second day or as late as the tenth. Simultaneously all over the body appear pinkish rose colored spots that are not elevated, that are round and measure 1-5 mm.; they vary in size in diameter from the point of a lead pencil to the size of the rubber eraser at the other end of the pencil. When pressed upon they fade but do not disappear completely. The abdomen, shoulders, back, sometimes the forearms and the thighs may be excessively covered with these lesions or there may be only a relatively few of them. At times the face may be involved but this is extremely exceptional. It is said in the epidemic or European type of typhus the eruption never appears on the palms of the hands or the soles of the feet, whereas the skin expressions are occasionally seen in endemic typhus in these two areas.

It hardly seems necessary to describe the other physical signs to a mixed audience. Actually even to the physician they are of no particular moment.

PROGNOSIS

Fortunately not only are the symptoms of endemic typhus milder than typhoid fever and infinitely more innocuous than epidemic typhus; so also is the death rate correspondingly much less. It is rare that a patient dies as result of typhus fever. The mortality rate is usually given as being 1 per cent.

Endemic typhus is definitely a problem of the South. In states other than Louisiana many more cases are reported than in our immediate locality. The explanation of this is that the milder winter climate, adequate food supply and failure to rat proof buildings result in a heavy rat population in the South, whereas in the North, on account of the greater cold, the necessity of erecting buildings of concrete and brick to keep out the winter and the lack of food for a rat makes the disease relatively rare there. In so far as is known at the present time, the only possible control of endemic typhus is to cut down or minimize the rat population which carries the flea which bites the man who gets the disease. Continuous combat against the rat by trapping and poisoning should be kept up wherever rats are found in a large number. If the efforts are not kept up continuously, the rats will grow relatively rapidly. They breed readily and increase vividly. Of course the best actual method of minimizing rats is to rat proof the places where rats congregate, breed, live and die. This, however, would be impractical on account of expense. Prophylactic vaccines have been prepared by Zinsser and others which may possibly be available in the open market sometime in the relatively near future.

CONCLUSIONS

Endemic typhus fever is a disease which is increasing in incidence sharply in the South at the present time, less so statistically in Louisiana than in some of the other Southern states, notably Texas, Georgia, and Alabama. It is a disease which may produce severe sickness and occasionally death. It is a disease which can be prevented if and when rats are controlled.

REFERENCES

1. Musser, J. H.: Typhus fever in Louisiana, New Orleans M. & S. J., 82:473, 1930.

2. Annual Report of the Surgeon General of the Public Health Service, Washington, D. C., U. S. Government Printing Office, p. 185, 1939.

3. Gordon, J. E.: The clinical features of rickettsial diseases, in Virus and Rickettsial Diseases, A Symposium held at Harvard School of Public Health, 1939. Cambridge, Harvard University Press, p. 828, 1940.

4. Dyer, R. E.: Rickettsioses of North America, Trans. Coll. Phys. Phila., 7:232, 1939.

RUPTURED INFRACLENOID ANEURYSM*

CASE REPORT

GEORGE M. HAIK, M. D.†
J. D. MAGEE, M. D.†
AND
G. C. ANDERSON, M. D.†
NEW ORLEANS

Congenital infraclenoid aneurysms have been reported at intervals for the last fifty years and other cases can be recognized in retrospect, as, for example, the case diagnosed by Cushing as ophthalmoplegic migraine which he later thought to be infraclenoid aneurysm.[1] The confusion is easily understood, for the description of ophthalmoplegic migraine given in the Oxford System of Medicine suggests that the syndrome may often be due to repeated leakages from a small aneurysm.[2]

To date we were able to find in the literature 24 cases of successful ligation of the common carotid artery in infraclenoid aneurysms. This is not to be confused with ligation for fistulous intracranial aneurysm.

SYMPTOMS

There are two groups of symptoms.[3] The first group is caused by pressure of the aneurysm on the adjacent structures, and may include ptosis, ophthalmoplegia, dilated pupils, pain over the ophthalmic division of the trigeminal nerve, projectile vomiting, and sometimes diplopia. The second group of symptoms is due to the leakage of blood following rupture. Immediately after the accident the patient is usually seized with a sudden violent headache, dizziness and vomiting, and may become unconscious. If he survives the acute attack, later symptoms develop, due to irritation set up by the presence of blood in the subarchnoid space; they include pain in the back of the neck, stiffness of the neck, and Kernig's sign. An elevation of temperature usually follows the hemorrhage.

---

†From the Departments of Ophthalmology and Surgery of the School of Medicine of Louisiana State University and Charity Hospital of Louisiana at New Orleans.

*Read before the Orleans Parish Medical Society, March 11, 1940.

DIFFERENTIAL DIAGNOSIS

A large number of conditions must be considered in making the differential diagnosis, including syphilitic meningitis, intracranial gumma, thrombosis of the cavernous sinus, tumors, inflammatory conditions of the orbit, cerebral neoplasms, meningioma of the sphenoidal ridge, pituitary adenoma, Gradenigo's syndrome, and nasopharyngeal malignancy.

Roentgenologic examination is sometimes helpful, but may be misleading. Arteriography, which was introduced by Moniz in 1937, promises to be much more helpful in diagnosing and localizing such aneurysms. Matas[4] has recently stated that he does not believe arteriography to be harmful, basing his opinion on the large number of cases in which the procedure has been carried out without untoward effects. This would seem to be a helpful method of determining definitely that the condition is an aneurysm.

TREATMENT

The treatment of ruptured infraclenoid aneurysm is surgical. The aneurysm may be attacked directly, or the operation may consist of an indirect attempt to induce thrombosis, either through ligation of the internal carotid artery in the neck or by trapping the aneurysm between ligatures placed on the carotid artery in the neck and intracranially. Dandy[5] has recently reported three cases treated successfully by the latter method, cases of successful ligation of the common carotid artery for ruptured infraclenoid aneurysm. Many patients succumb, however, before surgery can be instituted or even before the diagnosis can be made.

The case herewith reported is an illustration of a ruptured infraclenoid aneurysm, congenital in origin, which was diagnosed clinically before rupture and which seems to have been cured by simple ligation of the common carotid artery.

CASE REPORT

Mrs. I. L. J., a white female 28 years of age, was admitted to the ophthalmologic service of Charity Hospital of Louisiana on November 12, 1937. Two months before admission she had begun to have severe temporal and postorbital pain on the right side, together with inability to move the right eye except to the right and a sensation as if the right eye were being pulled to the right. Diplopia was present from the onset of the illness, and the right side of the face felt slightly numb. There were no other symptoms of any sort and no pain on the left side of the face and head or in the left eye. One week before admission to the hospital she had begun to have attacks of vomiting, without nausea or other gastric distress. Five days later ptosis of the right lid developed. The previous history was essentially negative except for a pelvic operation two years before at which she had been sterilized.

Physical examination revealed a well developed white woman, ambulatory and mentally rational, who appeared her stated age. She was 5 feet 6 inches tall and weighed 121 pounds. The only positive findings were in the head and neck.

There was pain and tenderness on deep palpation in the right temporal region. The right eyelid was ptotic. The right bulbus oculi was turned downward and outward and could not be moved in any other direction. The right pupil was dilated and did not react to light or accommodation. The fundus was normal. No abnormal findings were noted in the left eye or eyelid. There was partial anesthesia of the right side of the nose along the distribution of the right ophthalmic division of the trigeminus nerve. The right side of the neck was tender to palpation. On compression and immediate release of the right carotid artery the patient sometimes complained of a shooting pain in the right side of the face.

Examination of the spinal fluid showed no globulin and 150 red blood cells per cubic centimeter. The pressure was 10 mm. Hg. Urinalysis and blood Wassermann reaction were negative and the blood chemistry was within normal range. Roentgenologic examination of the head showed a definite narrowing of the right optic foramen with hyperostosis of the lesser wing of the sphenoid. The impression of the roentgenologist was that the pathology present was a meningioma of the sphenoidal ridge.

Two days after admission to the hospital the patient had what appeared to be a severe apoplectic stroke. She was comatose and markedly cyanotic, the pulse was imperceptible, and the respiration dropped to 5-6 per minute. The blood pressure was 95/60. The neck was stiff and spastic, and the eyes and head were both pulled to the right and tonically fixed. Babinski's reflex was present on the right, and an ankle clonus and Hoffman's reflex were present bilaterally.

The patient appeared moribund and responded only slightly to cardiac and respiratory stimulants and intravenous fluid therapy.

One of us was called in consultation at this point because the diagnosis of infraclenoid aneurysm had been suspected. The patient was seen some three hours after the onset of the acute attack and the diagnosis of ruptured infraclenoid aneurysm was confirmed. At this time spinal puncture revealed bloody fluid without increase in pressure. After several hours the patient's general condition improved, though she did not completely regain consciousness.

Ligation of the right common carotid artery was done November 17, double chromic catgut #3 and umbilical tape being used.

Convalescence was fairly smooth. A temporary left hemiplegia, which had developed rapidly, improved. The patient also complained of severe occipital and cervical pain. She was discharged to her home via ambulance on the eighth day after operation. At this time examination revealed residual weakness of the left leg, oculomotor paralysis, and partial anesthesia of the face. She had frequent headaches but otherwise felt fairly well.

FOLLOW-UP

February 14, 1938 (three months after operation), the patient returned with a draining sinus at the lower end of the incision. A piece of umbilical tape used for ligation was located and removed, after which the wound promptly closed. Examination at this time showed a marked improvement in the right external paralytic squint and the ptosis of the right eyelid. Diplopia was present only when the patient looked to the left. She had no complaints except for a feeling of pressure in the top of her head.

In January, 1940, two years and two months after ligation of the right common carotid artery the patient returned for a check-up. Examination revealed the right pupil to be fixed and slightly larger than the left. The ptosis of the right eyelid was visible only on close inspection, and there was marked improvement in the action of the internal, superior and inferior recti muscles. No squint was apparent, although the patient complained of diplopia when looking to the left. She also complained of numbness in the right side of the face and a sensation of pressure in the top of the head, but otherwise was perfectly well. No abnormal peripheral reflexes were present. Roentgenologic examination of the skull failed to show the narrowing of the right optic foramen and the hyperostosis of the lesser wing of the sphenoid observed at the previous examination.

REFERENCES

1. Albright, F.: The syndrome produced by aneurysm at or near the junction of the internal carotid artery and the circle of Willis, John Hopkins Hosp. Bull., 4 :215, 1929.

2. Oxford System of Medicine, Oxford University Press, New York, 1921-1927.

3. Walsh, M. N., and Love, J. G.: Intracranial carotid aneurysm: Successful surgical treatment, Proc. Staff. Meet. Mayo Clin., 12 :81, 1937.

4. Matas, R: Aneurysms of the circle of Willis, Ann. Surg., 107 :660. 1938.

5. Dandy, W. E.: Intracranial aneurysm of the internal carotid artery cured by operation, Ann. Surg., 107 :654, 1938.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Dorman B. Barber, M. D., Ex-officio
For one year: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

For two years: Lucien A. LeDoux, M. D., Vice-chairman
H. W. Kostmayer, M. D.

For three years: John A. Lanford, M. D., Secretary.

EDITORIAL STAFF
John H. Musser, M. D.……*Editor-in-Chief*
Willard R. Wirth, M. D.……*Editor*
Edwin L. Zander, M. D.……*Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
J. B. Vaughan, M. D.*
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D.……*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE WAR SITUATION AND THE MEDICAL PROFESSION

The very great military power shown by the German forces has resulted in a situation which has placed the United States in an equivocal position. Ostensibly and actually the sympathy of the great majority of the American people has been on the side of the Allies. This frequently expressed feeling that the Allies should be the victor has undoubtedly resulted in irritating the Germans. Furthermore, the United States has given help to the Allies in many ways.

Many other factors are of equal or greater importance than the antagonism which definitely exists between the Germans and the majority of American citizens. This continent is vulnerable. The Monroe Doctrine has been a heritage of our government for one hundred and seventeen years. We may get into trouble with the Germans if we maintain this doctrine. No matter what may be the cause of a possible war, which we hope will not eventuate, this country stands closer to war at the present time than it has stood since the epoch-making days of 1917-1918.

It behooves this country to be prepared. It is absolutely essential that the medical profession does its part. Plans have already been prepared by the Surgeon General's office which will mobilize the medical profession but only with their help and co-operation. These plans, which were presented at the recent meeting of the American Medical Association, in general called for what is believed to be the most efficient way of taking care of the soldiers and of the general population. In general, the parish and county medical societies are to be the nuclei from which men will be called into service. The parish medical societies will probably be asked to organize committees which will help a central committee in selecting those men who best are able to leave their homes, families and practice. It is intended to obviate the difficulties that arose in the last war, when certain communities were shorn of their medical men. Due to these smaller committees, localities will not suffer. Through these central committees appropriate men for appropriate positions will be selected. The roentgenologist will not be asked to operate, nor will the surgeon or dermatologist be asked to take care of neuropsychiatric patients, as happened in the last war.

The details of this comprehensive plan for the care of the patients at home or in the army will be presented in a short time to the parish medical societies. It should be borne in mind that for the plan to be a success it will be necessary for all to cooperate. Many a man who would be anxious to go, to join the army, will have to remain behind. It must not be forgotten that on his shoulders will be placed double work. He who remains behind will be called upon for unstinting labor and hard work; to the man who goes the possibility of being killed in action or getting sick or maimed. Under any circumstance the medical profession, in the event of war, will be called upon for self-sacrificing efforts, but for the immediate present, action must be taken quickly and all physicians must work together wholeheartedly and cheerfully.

SOCIALIZED MEDICINE

Recently there has appeared a book entitled "Frontier Doctor" written by a practitioner of medicine in central Oregon, reciting his experiences thirty-five years ago in the town in which he lived, some 120 miles away from the nearest railroad. This very interesting book gives a most fascinating description of the author's experiences. Particularly pertinent in view of the present day desire by a small group of people who do not know what they want is his philosophic discussion of some of the problems of practice, of the patient, and of the doctor. Coe* writes that thirty years ago the family doctor was the first man that the average person resorted to in time of trouble for help and sympathy. He is the one best qualified to give advice. The doctor knows more about the medical, moral and physical make up of patients than any one else. There is an intimate relationship between the doctor and the patient, one founded on trust. He says that "it was and still is the finest thing I know" but sadly he recounts that this is likely soon to disappear. The tendency toward regimentation of medical practice tends to destroy it and it has already been destroyed in the principal European countries where nowadays the patient is treated as a number instead of a human being.

As result of socialized medicine in Europe and freedom of practice in this country, America has rapidly forged ahead of the non-democratic countries in the medical sciences and in the scientific care of the sick. This is particularly true in the very important field of prevention of disease. In the more than three decades that this practitioner of medicine has been taking care of the ill and injured, he says he has never known or seen a person who needed medical care who did not get it. He differs with those who say that one-third of the people in this country do not get adequate medical care. In this lower income group there is more sickness; this is because the people lack proper food, clothing and housing. The Government should see that the lower one-third is properly fed, clothed and sheltered before starting in to change methods of practice. He says that no layman or group of laymen knows enough about the science of medicine or its practice to pass intelligent laws to govern it. He says, furthermore, that so much time is spent in paper work that in France, for example, a doctor who is a fast writer has to spend a minimum of fourteen minutes to do all the clerical work that each patient requires.

These expressions of opinion are penned by a man who has been in practice for many years. He cannot be accused of being a proponent of the American Medical Association because he is not even a member of the organization. He does, however, represent the practicing physician in the country and his sentiments are those of the great bulk of the medical profession. They are presented here merely to show how the average man in practice for many years feels about the threatened socialization of medicine and how he, as do most doctors, feels that it would be injurious to patients, to medicine as a whole and especially to the practice of medicine.

HYPERTENSION AND OBESITY

Every practicing physician knows that in the man who is overweight there is more likely to exist hypertension than in he who is lean. This has been corroborated repeatedly in clinical studies. Taking any group of hypertensive individuals, overweight would be three times more common than underweight. Furthermore, if the stout patients reduce to a normal weight the blood pressure often is materially lowered. In spite of these observations it cannot be shown that obesity does produce hypertension; a thin man is often found with hypertension and on the contrary there are stout men who have low blood pressures. As Robinson* points out, the most that can be determined from these findings, statistical and clinical, is that in some way obesity probably aggravates an inherited predisposition to hypertension. It may not be the obesity itself; it may be there is simply some alteration in metabolism associated with obesity that aggravates latent hypertension.

---

*Coe, Urling C.: Frontier Doctor, New York, Macmillan Company, 1939. Pp. 264.

Robinson, appreciating that body build is definitely related to weight and blood pressure, attempted to evaluate the weight factor and the build factor in their relationship to hypertension. A large group of patients was studied, something over 3000 men and over 2000 women. These patients were divided into groups: the slender linear, that is the long, thin type, and the lateral, the thick, broad type, further divided into marked and minimal. Without going into the details of these studies, suffice it here to say that the conclusions that are drawn by this author are of some moment, particularly his final conclusion that obesity plays a very minor part in hypertension. On the other hand, body build is of extreme importance. It is closely correlated with hypertension. The thick, broad chested person shows the greatest incidence of hypertension and the lowest incidence of hypotension. On the other hand, obesity is undoubtedly intimately connected with body build. The lateral, broad chested type of body configuration results in overweight in more than one-third of all people. On the other hand, the linear type of man is one-tenth as likely to be overweight as is the broad chested person.

In spite of the fact that Robinson believes that body build, regardless of weight, determines in a large part the predisposition of any person to hypertension, the fact remains that if the man of this type does gain weight and becomes overweight he is likely to develop a high blood pressure. It would behoove the slender or linear type of person to cease worrying about high blood pressure but the broad chested lateral type of individual continuously should be on his guard to prevent himself from becoming overweight with its tendency to produce increased blood pressure, diabetes and other less specific causes of ill health that develop from midlife on to old age as a result of overeating, if the fat person survives to this later period.

---

*Robinson, S. C.: Hypertension, body build and obesity, Am. J. Med. Sci., 199:819, 1940.

o

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TRI-STATE HOSPITAL, INC.

Shreveport

The Staff of the Tri-state Hospital held its regular monthly meeting May 9, 1940, with 21 members present. Dr. W. P. Butler called the meeting to order and the scientific program was then presented.

Dr. M. D. Hargrove presented the case of a white male, aged 21, who entered the hospital first on March 18, 1940, with history of cough, cold, pain in chest, fever and chills. Examination revealed temperature 103°, dulness over upper lobe of left lung, left sided lag, no rales or bronchial breathing. Total white blood count 26,700; polymorphonuclears 83 per cent. A diagnosis of lobar pneumonia was made and sulfapyridine therapy instituted. The sputum could not be satisfactorily typed because of previous sulfapyridine treatment. An x-ray showed a dense shadow throughout the entire left lung field. Aspiration on two occasions yielded several hundred cubic centimeters of straw-colored fluid which contained pus cells but no organisms. Following this he improved slowly and left the hospital on March 29. An x-ray two weeks later showed the same dense shadow present in the left chest. He was readmitted April 19, after which the course was slowly downward, and he expired on May 7. Autopsy revealed two separate tumor masses, one in each pleural cavity and separate from the lungs. Microscopic section of the masses was being done. The case was discussed by Drs. C. R. Gowen, O. O. Jones, P. R. Gilmer, Knoepp and W. P. Butler.

Dr. W. S. Kerlin presented the case of a white male, aged 50, who in June, 1939, had been in the hospital, at which time a diagnosis of tuberculosis of right lung and of the cecum was made. On this admission the history was one of bloody diarrhea for several weeks. Repeated transfusions were of no avail. He was operated on and an ileocolostomy performed. Postoperative course to date has been free of any bloody diarrhea. The case was discussed by Drs. P. R. Gilmer and C. R. Gowen.

Deaths of the previous month were then discussed. The hospital report was read and approved.

E. W. Booth, M. D., Sec.

HUEY P. LONG CHARITY HOSPITAL

Pineville

At the staff meetings of the Huey P. Long Charity Hospital, clinico-pathologic conferences were held and the following cases were presented for the month of May. These conferences are held under the supervision of Dr. O. W. McFarland, Superintendent, and Dr. John C. Connell, Staff Pathologist.

1. A case of a colored male, 74 years of age, with acute retention of urine. Physical examination revealed the fundus of the bladder palpable to the level of the ureter and a marked hypertrophy of the prostate. The blood pressure was 220/150. Blood chemistry showed NPN 42 and glucose 190. The following diagnoses were made: Hyperplasia of the prostate gland with acute retention of urine, hypertensive cardiovascular disease and uremia.

A suprapubic cystotomy was done and a catheter was left in place. The urine was very bloody and remained so. A cystostomy was then done which revealed a punctured lobe of the prostate with uncontrollable bleeding. The patient went into a state of shock and expired several hours after operation.

Postmortem examination revealed a marked hyperplasia of the left lateral lobe of the prostate which had been punctured by the trocar. Dr. Connell pointed out the apparent cause of death and discussed the relative infrequency of such a marked hypertrophy of the lateral lobe as compared with the median bar.

2. The case of a negro male, 58 years of age, who was admitted to the hospital after the sudden onset of intractable pain radiating from the epigastrium to the neck. This pain was of several hours' duration and had been partially alleviated with morphia before admission. The blood pressure was 180/114. The pulse was regular, with a rate of 70. The heart was enlarged downward and to the left. A loud systolic murmur was heard over the apex. An admitting diagnosis of hypertensive cardiovascular disease and dissecting aneurysm of the abdominal aorta was made.

At postmortem examination there was found a dissecting aneurysm of the aorta with rupture into the left pleural cavity.

3. A case of a white male, 7 years of age, whose present illness began two weeks ago when suddenly, while playing, he became unconscious. He recovered somewhat though remaining in a semi-conscious state and had definite muscular weakness over the left side of the body. Physical examination showed a palpable mass in the right upper abdominal quadrant and weakness in the upper and lower extremities. Because of extreme restlessness reflexes could not be elicited.

Postmortem examination showed bacterial endocarditis with cerebral embolism involving the right lobe. There was also primary carcinoma of the liver. Dr. Connell commented upon the rarity of primary carcinoma of the liver during the first decade of life.

4. A case of a negro male, 65 years of age, who came to the hospital in a comatose condition and was not able to give a history of his illness. Physical examination showed the heart and liver to be slightly enlarged. Laboratory findings were as follows: Total red blood cells 4,000,000; white blood cells 47,300 with 93 per cent neutrophils; blood chemistry NPN 133, creatinine 2, glucose 181; agglutinations negative for typhoid-paratyphoid group. A clinical diagnosis was made of uremia. Postmortem diagnosis was that of uremia, bilateral hydronephrosis and hydroureters. There was also lobar pneumonia involving right lower lobe.

5. A case of a white female, 67 years of age, who was admitted to the hospital with a diagnosis of arteriosclerotic heart disease with congestive failure, ascites and edema of the lower extremities. Shortly after admission the abdomen became distended and there was generalized tenderness. The liver was also enlarged and tender. The patient presented a picture of "acute abdomen."

At autopsy there was found carcinoma of the ascending colon with generalized metastasis. There was rupture of the colon into the peritoneal cavity with generalized peritonitis.

6. The case of a negro female, 50 years of age, who gave a history of a slowly growing tumor on the ventral surface of the foot on the medial side of the first metatarsal bone. The tumor was first noticed one year ago but did not cause any symptoms until she received slight trauma over this area three weeks before admission, tenderness then became so marked that she could not bear weight on this foot. Roentgen ray examination was

negative for bone or joint pathology. The tumor was excised with much difficulty. It was about 4 cm. in diameter and had many fibrous extensions. On microscopic examination this tumor proved to be a sarcoma arising from a tendon sheath. Since the tumor was of a slow growing type it was decided to treat this case conservatively. The patient is to receive deep x-ray therapy and return to the outpatient clinic for observation in order to determine whether or not amputation is to be done at a later date.

7. The case of a negro male 7 years of age, who came to the hospital complaining of pain, of about two months' duration, below the right knee joint with associated swelling and tenderness. Radiologic findings were suggestive of bone sarcoma. A biopsy was taken from the right tibia which on microscopic examination showed periosteal osteolytic sarcoma. High amputation of the thigh was advised.

All of these cases were discussed pathologically and clinically with special emphasis on the mode of treatment.

Wendell H. Cook, M. D., Sec.

GRADUATE SCHOOL OF MEDICINE LOUISIANA STATE UNIVERSITY MEDICAL CENTER

New Orleans

At the meeting held in June, 1940, Dr. John H. Connell presented the following paper:

MORE MALIGNANT CHANGES OCCURRING IN CELL CARCINOMA

Basal cell carcinomas commonly termed rodent ulcers are generally considered to have a definite course. They usually are defined as slow growing tumors of the skin, arising from the basal layer of epithelium, which progress locally and invade surrounding tissues, never metastasizing to distant foci.

Their histologic appearance is usually quite regular. The tumors are composed of small round polygonal cells with deep staining nuclei in faint cytoplasmatic structures. Their staining characteristics and morphology closely resemble the basal layer of the epidermis. Mitotic figures are relatively infrequent. Local invasion can be noted into the cuticular layer or into the deeper underlying structures.

In the course of studying a large number of such tumors clinically and histologically, it has become more evident that they do not always follow such an outlined course. Rapid growth, recurrences and metastases have been noted; histologic variances are frequent.

In a recent survey of 200 cases of basal cell carcinoma, the following facts were ascertained: These tumors are predominant in those individuals having a fair complexion; not, however, to the extent as the primary squamous cell carcinoma. These tumors are more prevalent in the white than in the colored race. They frequently are multiple, appear on any part of the body, more commonly in the region around the face. Recurrences have been found in 21 per cent of the cases, such recurrences appearing from six weeks to as long as four and one-half years.

Definite histologic deviations were noted in many of these tumors. The occurrence of mixed varieties of cancers wherein squamous and transitional cell varieties were apparently arising from, or in conjunction with the basal cell, occurred in 16 per cent of the cases. The malignancy noted in some such instances was of a fairly high degree and of the variety expected to metastasize to distant foci.

In attempting to correlate the clinical and pathologic irregularities, certain facts became apparent. The method of treatment definitely affects the course of the tumor. Those tumors which primarily were simple basal cell carcinomas, but inadequately treated, frequently showed at some subsequent period a tumor taking on more malignant characteristics. It is significant that the great majority of the recurrences were in those patients who were treated by the cautery. Other recurrences showed themselves where radiation therapy was inadequate or when surgery was necessarily limited.

The more malignant characteristics noted clinically were: Rapidity of growth; deeper extension and metastases. Histologically the change represented enlargement of the malignant cells, nuclei becoming hyperchromic, mitoses more frequent and the tendency for the formation of pearls significant of a squamous variety of carcinoma.

In conclusion, it may be stated that basal cell carcinoma, unless primarily adequately treated, may enter the category of more malignant neoplasms and metastasize to distant foci.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

July 1. Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
July 2. Eye, Ear, Nose and Throat Staff, 8 p. m.
July 3. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Mercy Hospital Staff, 8 p. m.
July 4. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
July 8. Orleans Parish Medical Society, 8 p. m.

July 9. Eye, Ear, Nose and Throat Society, 8 p. m.
July 10. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
July 11. New Orleans Hospital Council, Charity Hospital, 8 p. m.
July 15. Hotel Dieu Staff, 8 p. m.
July 16. Charity Hospital Medical Staff, 8 p. m.
July 17. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
The Orleans Tuberculosis Hospital Staff, 8 p. m.
July 18. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
July 19. New Orleans Dispensary for Women and Children Staff, 8 p. m.
July 23. Baptist Hospital Staff, 8 p. m.
July 24. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.
July 25. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
July 26. L. S. U. Faculty Club, 8 p. m.
July 31. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

During the month of June, the Society held one regular scientific meeting, at which the following program was presented:

1. Biographical Sketch: David French Boyd, a Louisiana Educator
   By invitation....Mr. William Dosité Postell
2. Interesting Case Report: Polyradiculoneuritis (Guillain-Barré)
   By................................Dr. Gilbert C. Anderson
3. Special Report: Studies on the Bleeding Tendency and Vitamin K Therapy in Newborn Children
   By ....Dr. Henry Leidenheimer, Jr.
   To open discussion................Dr. Rupert Arnell
4. Symposium on Chemotherapy:
   Pharmacology and Toxicology
   By ....Dr. E. E. Nelson
   Chemotherapy of Acute Infections
   By..........Drs. J. O. Weilbaecher, Jr., Homer Dupuy, and H. M. Taylor
   Present Status of Chemotherapy in Urology: A Clinical Evaluation
   By......................Drs. H. W. E. Walther and R. M. Willoughby
   Peritonitis
   By....................................Dr. M. L. Michel, Jr.

The following physicians were elected to membership in the Society: Active—Drs. Abe Golden, Bruno F. Mancuso, and Paul W. Renken.

The Secretary reports with regret the loss of Dr. A. A. Keller, one of the Society's active members.

NEWS ITEM

With the issue of May 24, "The Tiger," which was the official organ of the students of the School of Medicine of Louisiana State University since 1932, was discontinued. Next year a monthly publication, to be known as "The Journal of the School of Medicine of Louisiana State University" will be substituted for it. The new periodical will be edited by the students under the direction of an advisory board of faculty members.

The following members were elected to office in the New Orleans Graduate Medical Assembly for the year 1940-1941:

Drs. Val H. Fuchs, president; F. E. LeJeune, first vice-president; D. J. Murphy, second vice-president; D. N. Silverman, third vice-president; W. H. Gillentine, treasurer; J. S. D'Antoni, secretary; H. Theodore Simon, director of clinics, and James K. Howles, assistant director of clinics; Drs. O. W. Bethea, Edgar Burns, L. C. Chamberlain, Emmett L. Irwin, and J. H. Musser, members of the executive committee.

All officers of the New Orleans Pure Milk Society were re-elected at the annual meeting held at Touro Infirmary, May 6: Dr. Roy E. de la Houssaye, president; Dr. E. A. Socola, vice-president, and Mr. Robert H. Polack, secretary-treasurer. Dr. W. C. Rivenbark was elected assistant-secretary.

Beginning June 1 the Library will be open from 9 a. m. to 5 p. m. on Mondays through Fridays, and from 9 a. m. to 4 p. m. on Saturdays. This schedule will prevail until October 1. Physicians unable to come to the Library during the day may telephone their reference needs to Miss Marshall (Magnolia 2741) and material will be left at the information desk on the first floor, to be picked up at the physician's convenience.

Dr. A. L. Levin was a guest speaker of the New Mexico State Medical Society at its annual meeting in Albuquerque, May 27-29. The subject of his discussion was "Clinical and Gastroscopic Studies of Interest in the Diagnosis and Treatment of Peptic Ulcer."

Dr. W. H. Perkins presided over the Baby Health Bill meeting held in New Orleans, May 21. Addresses were delivered by Drs. Walter Levy and

Eugene B. Vickery. Drs. C. P. May and E. F. Salerno were also present.

Dr. A. E. Fossier was elected to honorary membership in the History of Medicine Society of the Tulane University of Louisiana School of Medicine at a recent meeting. Drs. Conrad Collins, R. S. Munger, J. H. Musser and Alton Ochsner were elected as faculty members.

Dr. A. L. Levin presented a paper before the National Gastroenterological Society in New York City, June 4, on "The Importance of Gastroscopy as a Diagnostic Procedure."

The City Hospital for Mental Diseases observed the twenty-ninth anniversary of the institution's founding with a party at the hospital on May 15. Staff members attending were: Drs. G. F. Roeling, F. R. Gomila, C. Grenes Cole, George Hauser, M. T. Van Studdiford, Emmett Irwin, Spencer McNair, and P. H. Jones.

Dr. Alton Ochsner gave a paper on "Phlebothrombosis" before the Erie County Medical Society on June 5.

Drs. Michael DeBakey and Alton Ochsner presented a paper on "Carcinoma of the Esophagus" at the meeting of the American Association for Thoracic Surgery, held in Cleveland, June 6-8.

A paper on "The Analysis of Comparative Skin Reaction by Means of the Chi-square Statistic" was presented at the Texas Allergy Association, May 13, by Dr. B. G. Efron.

Drs. Maxwell E. Lapham, C. C. Bass, Roy H. Turner, W. A. Sodeman and Grace A. Goldsmith recently attended out-of-state meetings of medical societies.

Dr. G. J. Taquino recently attended the meeting of the American Otological, Rhinological and Laryngological Society in New York City.

Dr. Isidore Cohn recently addressed the Texas Railway and Traumatic Association at Dallas. His subject was "Wound Treatment."

Drs. Walter Levy and Barrett Kennedy were guest speakers at the quarterly meeting of the Tri-county Medical Society at Tylertown, Miss., June 11. The title of Dr. Levy's talk was "Postpartal Infection"; Dr. Kennedy spoke on "Common Skin Diseases and Their Treatment."

Dr. Neal Owens spoke before the Sociedad Nacional de Cirugia in Havana, Cuba, on June 13. The subject of his talk was "Management of Burns and Defects Arising from Burns."

Dr. Isidore Cohn attended the meeting of the American Association for the Surgery of Trauma, in the Atlantic City on June 7-8. Dr. Isidore Cohn addressed the National Gastroenterological Association in New York on June 6. The title of his talk was "Cooperation between the Surgeon and Gastroenterologist."

Dr. W. H. Perkins represented the state at the thirty-sixth annual meeting of the National Tuberculosis Association in Cleveland, June 3.

Dr. Val H. Fuchs has been elected to membership in the American Laryngological Society.

Drs. Edmund Connely, Martha W. MacDonald, T. A. Watters, and Erwin Wexberg attended the meeting of the American Psychiatric Association in Cincinnati, May 20-24.

The initial meeting of The Circle, undergraduate honor society of the School of Medicine of Louisiana State University, was held on May 14 in the auditorium of the Nurses' Home of Charity Hospital. An address was made by Dr. Urban Maes, Director of the Department of Surgery, which dealt with the special responsibilities of students who are selected for membership in such organizations. Keys were presented to the seven fourth year and the three third year students who comprised the charter member group. Dean Burns made the presentation.

The fourth year membership is limited to the upper tenth of the class and the third year membership to the three highest ranking students. The advisory committee from the faculty consists of Dean Burns and Dr. J. D. Rives.

Dr. E. C. Faust was selected for honorary membership in the Eugene Field Society, a national association of authors and journalists, in recognition of the literary skill and craftsmanship of his works. Dr. Faust is best known for his book on "Human Helminthology."

LIBRARIAN'S REPORT

During the month of May 75 volumes have been added to the Library. Of these 40 were received by binding, 14 from the New Orleans Medical and Surgical Journal and 21 by gift. Notation of new titles of recent date is appended to this report.

The Library has loaned to physician 1,118 volumes during the month, or approximately two to each member of the Society. An additional 814 volumes have been loaned to students for overnight use, giving us a total circulation of 1,932 for the month. These figures do not include the use of books and journals within the reading rooms, of which no accurate record can be kept.

Members of the staff have collected material on the following subjects during the month at the request of physicians:

- Psychobiological studies following section of the corpus callosum
- Recent reviews on poliomyelitis
- Hemospermia
- Primary uterine sclerosis
- Vitality of spermatozoa in relation to sterility
- Prostigmin in myasthenia gravis
- Dermoid cysts
- Renal function tests
- Physiology of the kidney
- Hospital admissions
- Intern administration within the hospital

NEW BOOKS

American Association on Mental Deficiency: Proceedings and Addresses, 1935-38.

American Laryngological Society: Transactions, 1939.

American Otological Society: Transactions, 1939.

Anderson, M. E.: Cancer of the Breast and Cancer of the Uterus, 1939.

Cowdry, E. V.: Problems of Ageing, 1939.

Directory of Medical Specialists compiled by the Advisory Board for Medical Specialties, 1939.

Feder, J. N.: Essentials of Applied Medical Laboratory Technique, 1940.

International Congress of Military Medicine and Pharmacy: Report, 1939.

Kugelmass, I. N.: Newer Nutrition in Pediatric Practice, 1940.

Niemoeller, A. F.: Complete Guide to Bust Culture, 1939.

Northwestern University Medical School: Industrial Medicine Symposium, 1939.

Packard, E. N.: Artificial Pneumothorax, 1940.

Power, Stephen: Surgical Diagnosis, 1939.

Robey, W. H.: Health at Fifty, 1939.

Societa Medico-chirurgica Della Roma: L'intradermareazione per la Diagnosi Biologica Dell' Echinococco Umano, 1938.

Titus, Paul: Management of Obstetric Difficulties, 1940.

Trueta, H.: Treatment of War Wounds and Fractures, 1940.

U. S. Department of Agriculture: Food and Life, 1939.

U. S. Census Bureau: Vital Statistics, 2v., 1937.

U. S. P. H. S. Officers Association: Transactions, 1939.

Walthers, Waltman: Diseases of the Gallbladder and Bile Ducts, 1940.

Wiener, A. S.: Blood Groups and Blood Transfusion, 1939.

Wright, C. E.: Manual of Dermatology, 1940.

TREASURER'S REPORT

Bank balance, April 30, 1940	$5,415.76
May credits	348.47
Total credits	$5,764.23
May expenditures	834.63
Actual book balance, May 31, 1940	$4,929.60

Edwin L. Zander, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

NEW ORLEANS GYNECOLOGICAL AND OBSTETRICAL SOCIETY

The regular meeting of this organization was held conjointly with the clinical staff of the Southern Baptist Hospital, May 28, 1940. The scientific program included the following presentations: "Report of a Case of Bicornate Uterus with Transverse Presentation" by Dr. E. L. King, discussed by Dr. George Mayer; "Uterus Didelphic with Case Presentation" by Dr. P. E. Prouet; "Preliminary Report on Extensive Fibroid Study" by Dr. W. E. Levy, discussed by Dr. Peter Graffagnino.

AMERICAN MEDICAL ASSOCIATION MEETING

Some of the physicians from Louisiana who attended the meeting of the American Medical Association in New York City were: Drs. Donovan C. Browne, I. M. Gage, Sam Hobson, E. L. King, Maurice Lescale, D. N. Silverman, Frederick Vaughan, Rufus H. Alldredge, J. M. Bamber, J. A. Danna, John F. Dicks, Michael DeBakey, A. L. Levin, Emma S. Moss, Louis A. Monte, J. H. Musser, Louis Ochs, Alton Ochsner, Walter Otis, John T. Sanders, Narcisse F. Thiberge, Carl J. Tripoli, Charles A. Bahn, Elizabeth Bass, Guy A.

Caldwell, Conrad G. Collins, B. J. DeLaureal, George H. Hauser, George W. McCoy, M. D. Teitelbaum, H. R. Unsworth, T. A. Watters, of New Orleans; Drs. W. H. Browning, H. G. F. Edwards, A. A. Herold, W. R. Mathews, J. S. Shavin, of Shreveport; Drs. G. T. Gallaspy, J. Q. Graves, A. D. Tisdale, of Monroe; Dr. Louis Weinstein, of Breaux Bridge; Dr. P. H. Fleming, of St. Martinville, Dr. W. F. Couvillion, of Marksville; Dr. O. O. Antony, of Alexandria; Dr. M. R. Green, of Ruston; Dr. C. C. Blakeney, of St. Francisville, and Drs. V. E. McMains and B. E. Spencer, of Sterlington.

The 1940 Graduate Fortnight of The New York Academy of Medicine will be held October 14-25, 1940. The subject of this year's fortnight is "Infections." The purpose of the fortnight is to make a complete study and authoritative presentation of a subject of outstanding importance in the practice of medicine and surgery.

The Academy provides this program for the fundamental purpose of medical education; consequently all members of the medical profession are eligible for registration. A complete program and registration blank may be secured by addressing: Dr. Mahlon Ashford, The New York Academy of Medicine, 2 East 103 Street, New York City.

The Michael Reese Hospital, Chicago, is offering a course in electrocardiography for two weeks beginning August 19. The fee for the course is $100.00.

The next written examination of the American Board of Obstetrics and Gynecology will be held January 4, 1941.

The American Social Hygiene Association, Inc., is interested in obtaining information concerning the intravenous drip method of treating syphilis. They have requested that physicians and hospitals who are carrying out this procedure give them information as to the type of case being treated, name of drug or drugs used, number of days treatment, and other pertinent facts. The association, on the other hand, will be glad to answer inquiries regarding this form of treatment of syphilis. A pamphlet on the subject may be obtained from the Social Hygiene Association, 50 West 50 Street, New York City.

AMERICAN COLLEGE OF PHYSICIANS

The twenty-fifth annual session of the American College of Physicians will be held in Boston, with general headquarters at the Statler Hotel, April 21-25, 1941. Dr. James D. Bruce, of Ann Arbor, Michigan, president, will have charge of the program of general scientific sessions. Dr. William B. Breed, of Boston, has been appointed general chairman of the session, and will be in charge of the program of clinics and demonstrations in the hospitals and medical schools and of the program of panel and round-table discussions.

AMERICAN CONGRESS OF PHYSICAL THERAPY

The nineteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held at the Statler Hotel, Cleveland, Ohio, September 2-6, 1940. This year there will be a departure from the usual arrangements in that the mornings will be devoted to an instructional seminar with the scientific program presented in the afternoons and evenings. The entire instruction schedule is elective in character; registrants may pursue only the individual courses they desire. The scientific program consists of papers, demonstrations and motion pictures covering every branch of physical therapy. For further information write to the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

NEWS ITEMS

Dr. Ambrose H. Storck recently attended a meeting of the Surgeons' Club which was held in Chicago.

Dr. Isidore Cohn was guest speaker at the meeting of the Third District Medical Society at Lafayette, Louisiana, on June 27, 1940.

There is an opening for a physician in Vidalia, Louisiana. Details may be secured from Dr. John Schreiber of that town.

The U. S. P. H. S. has announced that they have a series of films illustrating various public health problems. For example, "Choose to Live," a two reel film on cancer control, may be purchased at the cost of printing, namely $14.68. It is possible also to obtain this film on loan. Details of the films may be secured from the U. S. P. H. S., Washington, D. C.

INFECTIOUS DISEASES IN LOUISIANA

For the twentieth week of the year, which came to an end May 18, there were reported to the Bureau of Epidemiology of the Louisiana State Board of Health 229 cases of syphilis, 40 of gonorrhea, 39 of pneumonia, 35 of pulmonary tuberculosis, 25 of cancer, 24 of whooping cough, and 14 of measles. No other reportable diseases exceeded ten in number. The following week, closing May 25, there were listed 156 cases of syphilis, 54 of whooping cough, 42 of pneumonia, 31 of cancer, 27 of tuberculosis, 13 of influenza, and 11 of gonorrhea. During this week there was a case of poliomyelitis reported from Orleans Parish, one of typhus fever from Pointe Coupee, and one of undulant fever from Orleans. For the twenty-second week, which ended the first of June, syphilis again pushed to the forefront with 148 cases listed. This disease was followed by three important respiratory tract infections: pulmonary tuberculosis, with 53 cases reported, pneumonia with 51, and whooping cough with 48. There were listed also 31 cases of cancer, 19 of influenza, 17 of gonorrhea, and 15 of malaria. A case of smallpox was discovered in Claiborne Parish, one of poliomyelitis in Orleans, and one of typhus fever in St. Martin. For the twenty-third week of the year, there were tabulated 158 cases of syphilis, 44 of pneumonia, 30 of cancer, 29 each of gonorrhea and pulmonary tuberculosis, and 14 of influenza. Another case of poliomyelitis was reported from Orleans Parish. A case of undulant fever was reported from the same source and typhus fever from Lafayette and Ouachita parishes, one each. For the week which closed June 15, 111 cases of syphilis were reported, followed by 76 of whooping cough, 70 of pneumonia, 30 of pulmonary tuberculosis, 26 of cancer, 15 of gonorrhea, 11 each of malaria and typhoid fever, and 10 of scarlet fever. It is interesting to note the large number of patients suffering from pneumonia, and this in spite of the fact that the summer season was present and there had been a long dry spell. The typhoid fever cases were scattered throughout the state, Lafayette and Vermilion parishes leading with three cases each.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reported that for the week closing May 11 there were 149 deaths in the City of New Orleans, 91 white and 58 negro. Fifteen of these were in children under one year of age and two-thirds of these deaths were in negro children. For the week ending May 18, the death rate was static, two fewer deaths beings recorded in the city than in the previous week, one less in each of the two races. However, there were only eight infant deaths. Quite a sharp drop occurred during the week of May 25, 116 deaths being listed, apportioned 72 white and 44 negro; there were only three infant deaths. Figures for the week of June 1, dropped back to those of the two previous weeks before the sharp drop: 147 deaths were reported, 84 in the white and 63 in the negro population. There were eight infant deaths practically all of which were in colored children. During the week of June 8, 121 deaths occurred in the City of New Orleans, largely due to the fact that only 32 negroes died that week, whereas there were 89 white deaths, about the usual number. There were only four deaths in children under one year of age.

SOME STATISTICS SHOWING DECREASE IN MORTALITY IN CHILDREN UNDER 12 YEARS IN FOUR DECADES

The following interesting study was presented to President-elect King Rand by the Rev. W. S. Slack, now a retired clergyman in Alexandria. It is presented to the State Medical Society not only because it is enlightening, but because of the thought-provoking personal observations of a prominent clergyman:

On March 8, 1896, I began my ministry in the Episcopal Church in Louisiana. With the exception of the three and a half years spent in Columbus, Miss., this ministry has been spent in Louisiana. From 1896 until 1902 I was in charge of the country missions at Rosedale, Maringouin, Melville, Lecompte, Washington, and Opelousas, with occasional visits to Bunkie and Marksville. In February, 1902, I moved to New Orleans, taking charge of Mt. Olivet Church (Algiers), but for several years retaining the work at Bunkie and Marksville in addition; when I released this work, I took up that in Plaquemines Parish "down the river," at Buras, Daisy and Dime (these latter places today are non-existent, being within the Bohemia spillway). Leaving Algiers, I moved to Columbus, Miss., and took charge of St. Paul's Church on February 1, 1914, and was rector there until September 1, 1917. I removed to Alexandria, La., as of date September 15, 1917, where I remained until I retired on December 1, 1937, but was in charge intermittently until the middle of the next year. During the last fifteen years of my ministry in Alexandria, I had charge of the missions at Boyce and Lecompte, and was always at the beck and call of any place without the ministrations of the Episcopal Church, so that my records are composite in their entirety. While resident in Columbus, Miss., I had, during my vacation in 1915, charge of the work of the Episcopal Church in the Canal Zone as acting-chaplain at the Ancon Hospital and other points. While there I buried some 45 or more negroes who died in that hospital; as I was given only their names and not ages, these burials are not included in these statistics. I had no way of finding out their ages.

The Canons of the Episcopal Church require its ministers to keep an accurate record of all official acts, such as baptisms, confirmations, marriages and burials; this record I have kept most assiduously, not only in the registers of the places where such an act took place, but in my own private register as well, for I soon found it advantageous so to do. At present this register is kept in the safe in the diocesan headquarters, 709 Louisiana Building, New Orleans.

For some time I had been impressed by the decreasing percentage of funerals of children under twelve years of age; accordingly, when on a visit to New Orleans, I carefully went over the record of all funerals I had since the beginning of my ministry in 1896 to within a month ago. I found that the percentage had decreased from 8 out of 12 in 1897 to 0 out of 43 in 1936; these were exceptional years, though it is of record that I had no such funerals during 1913, 1916, 1917, 1930, and 1934 as well.

It might prove tedious to give the annual record, so I am giving it by decades, and a single item for 1936-1937:

Years	Total deaths	Children under 12	Percentage
1896-1905	126	21	16.67
1906-1915	220	20	9.09
1916-1925	219	15	6.85
1926-1935	270	13	4.81
1936-1937	75	2	2.67
	910	71	7.80

(Among these deaths I recall one white man, a Finn, 105, and a negro, 110 years of age, and a goodly number in their nineties.)

In other words, in the first score of years of my ministry I had 346 burials and of that number 41 were children of 12 years or younger, practically 11.85 per cent; in the second score it had fallen to 5.73 per cent, less than half of the first; while in the last two years of my active ministry the percentage had fallen to less than one-half of what it had been the second score, one-quarter of what it had been the first score and around one-sixth of that of the first year of my ministry.

To what can this decrease be ascribed? As a layman, I would say to (1) prenatal care, (2) more careful nurture of the young children, and (3) preventive medicine. I leave the answer to the medical profession.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

THE PRESIDENT'S MESSAGE

Greetings to My Auxiliary Members:

In accepting the leadership of this organization I realize it is my greatest privilege and my greatest responsibility. The able women who have preceded me as president of this Auxiliary have kept well in mind our rightful position, that we are an Auxiliary organization. The task of carrying on their work has now been placed in my hands, the responsibility of its fulfillment rests most heavily upon me and impels me to call on every member for the utmost in cooperation and assistance.

In your community and in mine, the Auxiliary has served to develop a more friendly feeling between physicians and between the families of physicians, and has brought about a realization of the fact that we have a common goal. It is my hope that during the coming year the membership of this organization may be greatly increased. We ought to remember that the wife of every doctor affiliated with the Louisiana State Medical Society should be a member of this Auxiliary. Let the slogan this year be "Every Member Pledge One New Member."

To those of you who were not with us in New Orleans, I want to say that it was a grand meeting. Reports of the growth and accomplishments of our organization were truly inspiring. Much credit is due the Convention Chairman, Mrs. James W. Warren, and the President of the Orleans Parish Auxiliary, Mrs. Aynaud Hébert, and their co-workers for a most delightful convention.

Mrs. Roy Carl Young, President.

THE ANNUAL MEETING

The Women's Auxiliary to the Louisiana State Medical Society enjoyed a most successful meeting in New Orleans. The registration exceeded that of all years gone by.

A luncheon held at Arnaud's opened the social side of the meeting. This was called our Americanism luncheon, the color scheme being red, white, and blue. Mrs. Rogers Brewster supervised the ceremony in her own gracious manner. Dr. King Rand, the new state president-elect, and Dr. C. Grenes Cole, the incoming president, gave inspiring talks and stressed appreciation of the Auxiliary in its association to the Society. The musical program consisted of spirituals sung by negro university students. This completed a very enjoyable day.

The supper dance given by the State Society in the Mirror Room at the Roosevelt Hotel was a magnificent affair, with a good meal, good music, and a splendid floor show. The great number attending had a most enjoyable evening.

The annual meeting was held at the Orleans Club following a real southern breakfast. Mrs. S. M. Blackshear presided in her same gracious manner and held the attention of an extremely large attendance throughout the meeting. Mrs. Charles Raymond Hume gave the address of welcome with Mrs. Erwin Gill, of Shreveport, responding. Many matters of importance were discussed. Each parish president gave interesting reports of the year's activities, bringing forth many novel ideas in carrying on their philanthropic endeavors. The highlight of the meeting was the ceremony of presenting the pins to past presidents by Mrs. A. D. Tisdale, of Monroe, who deserves much credit in preparing so interesting a paper on the work of each past president.

The only sad moment was the "In Memoriam" honoring our two departed members, Mrs. H. W. E. Walther, of New Orleans, and Mrs. Valentine Simmons, of Shreveport, who passed on during the year. Large bouquets of red roses were brought in during this ceremony by little Elise Silverman and Yvonne Lacroix. These flowers were sent to the family of Mrs. Walther who was a past president of the State Auxiliary.

The election of officers concluded the meeting and Mrs. Aynaud Hébert, of New Orleans, was named president-elect. I want to take this means of extending congratulations to Mrs. Hébert from every member of the Woman's Auxiliary to the Louisiana State Medical Society.

The final note of the convention meeting was the tea at the Pontalba honoring Mrs. Roy Carl Young, the incoming president. This was a most outstanding event.

Enough credit cannot be given Mrs. James W. Warren and her very fine committee for the manner in which she so ably handled this meeting.

Mrs. Jules Myron Davidson

Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Press and Publicity Chairman.

BOOK REVIEWS

Health Insurance with Medical Care; The British Experience: By Douglass W. Orr, M. D., and Jean Walker Orr. New York, The Macmillan Co., 1938. Pp. 271. Price $2.50.

In conducting their survey of The British Experience with National Health Insurance, reported in this valuable, readable source book, Dr. and Mrs. Orr had the wit to go, for their information, to those most concerned, to the people themselves, —the rank and file of physicians, to workmen and members of their families,—all of whom seemed to be greatly pleased with the scheme. This comprehensive investigation was made by the authors with the view that their findings might contribute something of value to the discussion and solution of America's national health problems.

The Orrs found the National Health Insurance project in England imperfect but vastly useful and promising. Even though the Government contributes to the expense and imposes an administrative setup which exercises certain controls, medicine, under the British plan, is social rather than socialized. National Health Insurance is compulsory for all wage earners or one-third of England's population. Its cost to each worker is about ten cents a week which covers the services of general practitioners but not specialists' fees or hospital charges and only employed persons are entitled to benefits. Choice of so-called "panel" doctors is allowed and they may be changed if dissatisfaction arises; there have been surprisingly few such changes. Since the "panel" doctors may also be the private physicians to the unemployed members of a family, it is unlikely that they will do careless work.

The authors reached the conclusion that National Health Insurance can and does work and that the British method of procedure is not understood in America. It would do much to clarify the situation in this country if every member of the American Medical Association became acquainted with Great Britain's experience.

A study of this excellent treatise will encourage those who believe in a program for public health maintenance in the United States and will reassure those who fear for the destruction of the traditional doctor-patient relationship.

The Honorable David Lloyd George's impassioned gestures, in his campaign to legalize National Health Insurance in England, were significant and predictive. The American people have yet to deal, on a major scale, with the vital issue, —the problems of illness and disability and adequate, inexpensive medical care.

C. P. May, M. D.

Priests of Lucina: By Palmer Findley, M. D., F. A. C. S. Boston, Little, Brown & Co., 1939. Pp. 421. Price $5.00.

The author of this book is Professor of Obstetrics and Gynecology (Emeritus) at the University of Nebraska and has delved deeply into the history of obstetrics. The present volume derives its title from the goddess of child-birth, Juno Lucina, and consists chiefly of a series of biographical sketches of those who have been responsible for the fundamental advances in the field of obstetrics. Primitive (as one may say) prehistoric midwifery, is first discussed, then the obstetrical practices of the Orient. Next, the author begins his biographical sketches, appropriately enough, with Hippocrates, followed by reviews of the work of Soranus, Galen, and the Arabians. In sequence we read of the lives and achievements of the masters of all countries, terminating most fittingly with a sketch of the outstanding American master, Dr. J. Whitridge Williams. Then follows a history of special phases of obstetrics, anatomy, the forceps, and puerperal fever.

This work presents in a very clear and interesting manner the story of the development of the art and science of obstetrics. It is a veritable mine of information, and is of the greatest interest to the obstetrician and to the medical historian. It belongs in the indispensable class, as far as workers in these fields are concerned. The author's clear and lucid style adds greatly to the interest of the presentation.

E. L. KING, M. D.

Clinical Pathological Gynecology: By J. Thornwell Witherspoon, B. S. (Princeton), B. A., and M. A. (Oxon), M. D. (Johns Hopkins). Philadelphia, Lea & Febiger, 1939. Pp. 400. Price $6.50.

As a review for practitioners, or an introduction of gynecologic pathology to the medical student, this book correlates the clinical aspects of each pathologic condition. The more recent classification of ovarian tumors is given with adequate description of treatment.

Commercial preparations of the hormones are listed as well as dosages of the preferable ones, giving information found in very few texts.

Admittedly an incomplete text because of the omission of chapters on fundamentals, the author has nevertheless furnished a background for the study of gynecologic diseases in an interesting manner. The gross and microscopic illustrations are excellent.

EUGENE H. COUNTISS, M. D.

Physical Signs in Clinical Surgery: By Hamilton Bailey, F. R. S. C. (Eng). Baltimore, The Williams and Wilkins Company, 1940. Pp. 310; illus. 377. Price $6.50.

This is an excellent and well illustrated volume with information condensed as much as possible. It will be an addition to the library of any surgeon. It is designed primarily to be of assistance to men who are confronted with a wide variety of surgical conditions and it obviously is not intended for use of the specialist.

Problems in diagnosis are discussed in such a way that the man who has at his command all of the facilities of the laboratory will be aided as well as the surgeon in the country who must depend largely on his own powers of observation.

The author has identified the men after whom various signs are named by a brief footnote. For example: Scarpa, 1747-1832, anatomist and surgeon, Venice. It is very doubtful that any physician can read this book without adding materially to his knowledge of surgical diagnosis.

In the introduction this significant quotation appears: "If it is a question of doubt in diagnosis, you may often observe that one man solves the doubt when the others could not, and the way in which one man happened to solve it is this: he applied to the diagnosis of the case some method of examination which others had not applied."

Many of the illustrations are taken from photographs and a number are in colors. These latter add much to the value of the book.

EDWARD A. FICKLEN, M. D.

Sexual Disorders in the Male: By Kenneth Walker, F. R. C. S., and Eric B. Strauss, D. M., F. R. C. P. Baltimore, Williams and Wilkins Company, 1939. Pp. 242; illus. Price $3.00.

The collaboration of an urologist and a psychotherapist makes this book quite different from the usual monograph on this subject. The authors have attempted to approach a complex group of related disorders with a comprehensive viewpoint, since they appreciate the interplay of anatomic and functional factors which so frequently confound the clinician who is faced with a problem of this type.

Although both medical and surgical therapy is described, the greater value of this work probably lies in those portions devoted to psychopathology, for here one will find numerous keys to the solution of obscure problems. The book contains many case reports illustrative of the particular phase of disorder under consideration. Since these case reports are rather typical, they should be of great value to the reader who encounters similar cases. An interesting characteristic of this valuable little treatise is the tendency on the part of both authors to question the rationale of some of the therapeutic measures which heretofore have been applied empirically.

The book is written primarily for the general practitioner rather than for the specialist. It is, however, this reviewer's opinion that the specialist will find it well worth his while to read the volume.

IRVING J. GLASSBERG, M. D.

Blood Groups and Blood Transfusion: By Alexander S. Wiener, A. B., M. D. Springfield, Illinois, Charles C. Thomas, 1939. Pp. 306. Price $5.00.

Since the appearance of the first edition of this book in 1935, considerable progress has been made in the knowledge of blood groups and the practice of blood transfusion. In this second edition the author has included these advantages.

The subject of blood groups is presented in a thorough and comprehensive manner. Particular consideration is given the medico-legal and forensic aspects. Undoubtedly this is the most exhaustive, up-to-date, and authoritative exposition of blood groups that has been compiled. Unfortunately the section on blood transfusion does not approach this high standard, a criticism which also applied to the first edition. Thus, for example, only 2½ pages are devoted to the consideration of preserved blood, a subject which in the past several years has become increasingly prominent. Moreover, the statement made on page 88 that the tube method of transfusion was "introduced" in this country by a certain author is incorrect as this method had been described by at least three different authors several years previously. However, in spite of these minor criticisms, the book is a valuable and standard work in this field.

MICHAEL DEBAKEY, M. D.

A Short Story of Cancer of the Breast and Cancer of the Uterus: By Marion Ellsworth Anderson, A. B., M. D. Clinton, Ohio, Author, 1939. Pp. 106. Price $1.00.

In this pamphlet of 102 pages many excellent gross and microscopic pictures of carcinoma of the breast and uterus are given. There are also several diagrams to illustrate points the author wishes to stress.

The purpose of this pamphlet, as given in the introduction, is to emphasize the importance of these two conditions to general practitioners, and, secondarily, to registered nurses. The material presented is a very brief review of the literature on this subject, coupled with liberal references to standard texts of pathology, and, to a certain extent, with the author's own experience. There is nothing new in the brochure and little of practical value. While the author stresses the importance of surgery, radium, and x-ray therapy, he also mentions, without sufficient condemnation, various injection treatments. The methods of diagnosis are mentioned very briefly and without sufficient emphasis.

From this pamphlet, the chief impression to be gained is that cancer is a terrible disease—a generally accepted belief.

JOHN C. WEED, M. D.

Diagnostic Signs, Reflexes and Syndromes (Standardized): By W. E. Robertson, M. D., F. A. C. P., and H. F. Robertson, B. S., M. D., F. A. C. P. Philadelphia, F. A. Davis Co., 1939. Pp. 309. Price $3.50.

This is a handy and useful compilation of diagnostic signs, reflexes and syndromes. The authors have attempted to gather and standardize for the first time the indications for the various diagnostic signs, reflexes and syndromes, as well as the first standardization of what constitutes them. This book is a valuable and real contribution to medical literature. While minor criticisms as to some of the indications and occasional sins of omission and commission are to be found, and will probably be the basis of a new edition at a later date, this book is recommended as useful and valuable, as well as being the first handbook on the subject.

B. B. WEINSTEIN, M. D.

Population, Race and Eugenics: By Morris Siegel, M. D. Hamilton, Ont., Author, 1939. Pp. 206, Price $3.00.

This small volume is devoted to a study of three circumscribed subjects: population, race and eugenics. Although the material of each is comprehensive, the treatment indicates that obviously it is not intended particularly for the medical profession. Indeed, the medical man may question several of the statements made. In general, however, the author steers a straight, sane, middle course, presents an array of scientific statistics and data from which sound conclusions are drawn. There is nothing profound in the exposition, no original advancement in practice or theory.

The chapter on race is the best in the book and is interesting especially in view of the current farcical argument in Europe. Dr. Siegel goes to great length to prove that the theory of Nordic superiority is only a myth, that it gained footing through distortion of scientific facts for political aims, and that such false theories have led in the past and are leading at present, to super racial arrogance and to wars and bloodshed.

The rest of the volume contains the usual observations on rational marriage, the feebleminded, and restrictive measures, including sterilization. Although the effort towards solution to such profound problems is sincere, likely this volume will add little actual knowledge to the shelves of a medical library.

R. S. MUNGER, M. D.

As the Twig is Bent: By Leslie B. Hohman, M. D. New York, MacMillan Co., 1940. Pp. 291. Price $2.50.

This is a meritorious book by an author who is a distinguished authority in the ever widening field of the investigation into, and the management of, behavior problems of children and counselling others concerning them.

Dr. Hohman looks upon adolescence as a normal phase of development through which all children pass. He believes that all children acquire undesirable habits and personality traits which are to be regarded as normal reactions to environmental situations and which do not, necessarily, in any way stamp a child as being abnormal, but in certain instances, overemphasized reaction trends require corrective measures to prevent their becoming actual maladjustment impairments. It is in the application of preventive and remedial measures that the child needs to be thoroughly understood and its parents encouraged and adequately educated.

In many respects this volume should be a valuable and distinct aid to thoughtful parents, teachers, doctors, nurses, and those who are engaged in training and educating adults and children and in handling the numerous complexities which arise when efforts are made to secure for each child a maximum of health, both mental and physical. Especially outstanding and well written chapters are those on "Bad Habits Live on Dividends," "Illness—Real and Otherwise," "The Inside Story of Attractiveness," "Girlish Boys and Boyish Girls," and "Your Child's Future Is in Your Hands."

The author is entitled to much praise for his work since it contains a host of readily adaptable suggestions and is characterized by accuracy, clarity, completeness, common sense and absence of sensationalism. Those who follow his recommendations will achieve thoroughly satisfactory results in their endeavors.

C. P. MAY, M. D.

Treatment by Diet: By Clifford J. Barborka, B. S., M. S., M. D., D. Sc., F. A. C. P. Philadelphia, J. B. Lippincott Co., 1939. Pp. 691. Price $5.00.

Dr. Barborka's book represents a rather successful attempt to meet the need of the practicing physician for a quick reference book on diets needed in everyday practice. The plan of the book is such that the diets for use in various disease states are of easy access; furthermore, diets are outlined in both weights and household measures, and sample diets are given. This makes it simple for the physician to familiarize himself with any particular diet as well as to explain it to the patient. Extreme diets that have appeared in the literature from time to time have not found a place in this book, for which Dr. Barborka is to be congratulated.

We highly recommend it for the use of the practicing physician.

ROBERT C. LOWE, M. D.

Laboratory Manual of the Massachusetts General Hospital: By Francis T. Hunter, M. D. Philadelphia, Lea & Febiger, 1939. Pp. 119. Price $1.75.

The chief merit of this little handbook is conciseness. Originally intended as a pocket outline of the routine laboratory work done by interns in the Massachusetts General Hospital, this third edition contains succinct descriptions of nearly all modern tests and procedures commonly employed in any hospital. There are chapters on examination of specimens, collection of specimens, special diagnostic procedures (e.g., liver function tests, pneumo-encephalography), therapeutic technics, and prophylactic measures. An appendix lists normal values for blood and blood chemistry and cerebrospinal fluid. There is, however, no information whatsoever on the principles of these tests, on the basic indications and interpretations thereof. For this reason the book likely will prove too constricted and incomplete either for reference or practical use by students and practitioners alike. But for its use as originally intended, as a laboratory outline for the intern in the hospital, the book is highly commendable.

R. S. MUNGER, M. D.

Ten Years in the Congo: By W. E. Davis. New York, Reynal and Hitchcock, 1940. Pp. 301. Price $2.50.

Davis spent ten years as a medical missionary in the Belgian Congo, and uses this book for a sketch of some of his keen observations, excellent characterizations, impressions and activities. It is written in a similar vein to Victor Heiser's recent book but with much less self-consciousness and braggadocio.

The Congo adopted Davis and has become a part of him. He ably paints clear, sometimes beautiful, picturesque and memorable portraits of that country, its people, and his medical experiences. The accounts of his surgical and obstetrical experiences are most interesting, and one is especially impressed by the vivid, sympathetic, and graphic descriptions he has given of native practices, particularly of obstetrics.

His sympathetic understanding of the natives and his description of some of them, "half children, half philosophers," with whom he came in close contact is noteworthy.

This is not another travel book. It is not just another doctor's memoirs. It is a fresh, witty, humorous, slightly too "slangy," but always interesting account of a people and a region too little known in medicine and literature.

B. B. WEINSTEIN, M. D.

PUBLICATIONS RECEIVED

Columbia University Press, New York City: The March of Medicine, Number IV of the New York Academy of Medicine Lectures to the Laity.

S. B. Debour, Chicago: Differential Diagnosis in Internal Medicine, by Prof. Dr. Med. O. Naegeli.

Harvest House, New York City: Handbook of Hearing Aids, by A. F. Niemoeller, A. B., M. A., B. S. Complete Guide for the Deafened, by A. F. Niemoeller, A. B., M. A., B. S.

The Johns Hopkins Press, Baltimore: Malaria and Colonization in the Carolina Low Country, 1526-1696, by St. Julien Ravenel Childs.

Lea & Febiger, Philadelphia: The Foot and Ankle, by Philip Lewin, M. D., F. A. C. S. Obesity and Leanness, by Hugo R. Rony, M. D. Physical Therapy for Nurses, by Richard Kovács, M. D.

The Macmillan Company, New York City: Biochemistry of Disease, by Meyer Bodansky, Ph. D., M. D., and Oscar Bodansky, Ph. D., M. D.

The Medico-historical Press, Boston: Life and Letters of Fielding H. Garrison, by Solomon R. Kagan, M. D.

W. B. Saunders Company, Philadelphia: Clinical Heart Disease, by Samuel A. Levine, M. D., F. A. C. P. A Textbook of Pathology, by W. G. MacCallum. Neoplastic Diseases, by James Ewing, A. M., M. D., Sc. D., LL. D.

The Williams and Wilkins Company, Baltimore: A Synopsis of Surgery, by Ernest W. Hey Groves, M. S., M. D., B. Sc. (Lond.), F. R. C. S. (Eng.). An Index of Treatment by Various Writers, edited by Sir Robert Hutchison, Bt., M. D., LL. D., P. R. C. P., assisted by Reginald Hilton, M. A., M. D., F. R. C. P.

* * *

New Orleans Medical
and
Surgical Journal

Vol. 93 AUGUST, 1940 No. 2

RUDOLPH MATAS
DEAN OF AMERICAN SURGERY*

ELLIOTT C. CUTLER, M. D.†
BOSTON, MASS.

> *"Bold when sure; cautious in danger; kind to the sick; considerate of your fellow-workers; uninfluenced by gain . . ."*
>
> Guy de Chauliac.

We are gathered together this happy evening to do honor to a great institution, an institution as much a part of the life of Louisiana and of this romantic and colorful City of New Orleans as the great river which flows by your doors. This institution moreover has spread beyond civic and provincial limits until it may now be fairly said that its works and discoveries permeate the civilized world. It is an institution with an amiable government, a universal membership and a simple creed,—let us work for the good of others. It transcends all partisanship and it offers hope to suffering humanity. Beginning simply in the mind of an individual it now enrolls thousands upon thousands of devotees. It is already indestructible and has taken its place with eternity. We who come together tonight are happy to be its servants and I who speak for you do so with the greatest humility knowing full well that no equal honor will ever reach the shoulders of any of us.

The institution of which I speak is, of course, Rudolph Matas. Rudolph Matas, for many years dean of American surgery, is no longer an individual. He is a corner-stone of American surgery, securely builded into its very foundations as something upon which our professional offspring may lean with confidence and benefit throughout the years to come. By the vigor and brilliance of his intellect and the cordiality of his spirit he has set himself securely in the high seats of our surgical profession amongst such giants as Walter Reed, Ephraim McDowell, Valentine Mott, William Halsted and Harvey Cushing. And though he has labored long beyond the three score years and ten set in the "Good Book" as a proper limit for humanity, he still shows us the face and spirit of youth. At Brussels, Belgium, some two years ago I spoke of him as having in addition the "soul of an angel" which characteristically pictures his warm and generous spirit. How can we honor one already so laden with decorations and victories? Blessed by a personal friendship which I value far more than the honors that come with growing up, I feel certain that this man's spirit will be greatly moved by your demonstration of tonight. For one of his greatest characteristics is his simplicity!

My personal debt is a deep one not to be wiped out by this trip from snow-clad New England to your happy city nor by any series of trips to the shrine of this institution. As a young surgeon in 1924 I described before the American Surgical Association some experiences I had acquired in attempting to enlarge the stenosed mitral valve in chronic heart disease. I finished,—my mouth parched, my hands and knees trembling,—only to be revivified and stimulated by kind and thoughtful words emanating from the Rudolph Matas institution. It was just the fillip the young surgeon needed and came in that friendly and cordial spirit so seldom experienced in New England.

---

*Presented at the fourth annual meeting of the New Orleans Graduate Medical Assembly, February 26, 1940.

†From the Department of Surgery, Harvard University School of Medicine, Boston, Mass.

How can we evaluate such an institution as Rudolph Matas? There is the great surgeon whose skill, daring and good sense have brought relief to suffering individuals; there is the stimulating, affectionate and eminent teacher whose pupils have spread his gospel far and wide; there is the tireless worker for civic and professional betterment, always espousing the just and worthwhile cause seeking to bring together all partisan elements for the common weal; and finally there is the adult institution spreading its benificent influence not only throughout our whole country but throughout the civilized world!

It has been said that the proper study of mankind is man and perhaps by a brief study of our beloved and honored guest we shall see how it is such institutions arise and thus place honor where honor is due. We see the beginnings of our institution in Gerona, Spain, where his parents' families had for years been sturdy, successful, farmers, merchants, priests and municipal office holders. That his father and mother were both one of nine children emphasizes the vigor of his inheritance and the robust health of our institution tonight reflects better than words its debt to these progenitors. Immediately after marriage these parents moved to New Orleans (1856), where the bride's brother-in-law assisted the father of our institution in establishing a pharmacy. Immediately the young bridegroom commenced the study of English and medicine and by 1859 graduated from the New Orleans School of Medicine. Here again the abilities of the son are mirrored in the parents. Almost coincidental with receiving this degree in medicine, fire destroyed the pharmacy and the family moved to Bonnet Carré where our institution was born September 12, 1860. The Civil War soon interrupted a medical career for the father of our institution, and after a successful venture in the cattle business the family moved to Paris, France, that the father might receive further training in ophthalmology. Thus will a Spanish inheritance and only a four year glimpse of America our prodigy moved to Paris for his early education. Only two years later the family moved again and settled in Barcelona. But by 1867 they returned to New Orleans and shortly thereafter moved to the Mexican Border. Up to now the polyglot and peripatetic education of our institution lacked English which was soon to be learned in the public schools of Brownsville, Texas. This was followed by two years in a New Orleans college and then further studies at the College of St. John in Matamoros. At the same time he worked in a pharmacy and finally matriculated at the Medical School of the University of Louisiana, now Tulane. Here he progressed rapidly and in 1877 won in competitive examination the post of resident intern at Charity Hospital. Upon graduation in 1880 he became Chief of Clinic and in 1894 Professor of Surgery, maintaining active association at this Hospital until 1927 when he retired from his teaching position. Thus for 50 years he was actively associated with your great and world-renowned Charity Hospital.

This glimpse into the background of our institution shows that its characteristic earmarks of industry, scholarship and wholehearted devotion to the task at hand were also to be seen in its antecedents and that the robustness and vigor which has so long characterized it was a family trait.

There is not the time to review Dr. Matas' postgraduate education. It was, as was his whole education, a continuous and growing experience. He traveled to all the great centers in our own country and in 1886 was in both Paris and Barcelona where, imbued with his responsibilities as demonstrator of anatomy, he sought out chiefly the anatomic departments. This was characteristic of the man. What he had to do he wished to do very well. With his traveling he made friends everywhere and his inquisitive and scholarly nature increased his education day by day so that no one viewing his career in retrospect could but marvel at his steadily increasing success.

Moreover we must envisage the surgery of that day. Bacteriology was established and surgery was progressing from the antiseptic to the aseptic method. Dr. Matas early realized the simpler and more positive value of sterilization by heat. Next he turned his interest to local and spinal anesthesia and was one of the very first to ultilize the latter method. Indeed his description of his first attempt at spinal anesthesia with cocaine and particularly his observations of the after effects was one of the most valuable contributions in this field at that time. This was shortly followed (1888) by his papers dealing with the replacement of fluid for shock, hemorrhage, and other surgical complication, by the "continued intravenous drip" route, a method now popularized and in every day use in all our hospitals. And by 1911 he was advocating gastro-duodenal tube syphonage for intestinal obstruction, peritonitis and paralytic ileus. His modesty has allowed others to have their names attached to such life-saving methods, though priority of thought and effort belong to him. It is just this spirit which has raised him high above his fellow workers. Later his interests roamed everywhere. His studies in the field of intrathoracic surgery led him to assist in the development of apparatus for keeping the lung expanded when the chest was open.

And finally his work on aneurysm! It is known to the world and accepted by all as the greatest contribution in the field of vascular surgery. In such an intimate gathering it should be of interest to inquire why and how this interest in aneurysm arose. Let us go back to the epoch preceding the advent of our institution. First there were not a great many surgical operations except those of necessity, secondly most surgeons entered this field through anatomy and thirdly the ligation of the great vessels for aneurysm was looked upon in those days as the surgeons' greatest claim for recognition. How could the young ambitious, anatomically minded young Matas do otherwise than yield to this incentive, especially when we know his predecessor Smyth had won unique success by ligation of the innominate artery. Moreover, this natural ambition was presented with unsurpassed material in the wards of the Charity Hospital.

A study of his own notes of his first case, a 28 year old negro submitted to operation March 30, 1880, reveals the reason for developing his method of endo- or intrasacular aneurysmorrhaphy. Here we see the reasons for his success, his many contributions and the foundation of the Rudolph Matas institution. Now with our eyes opened by his works it seems simple. The facts had been the same from time immemorial but observation had been faulty. Matas noted that the reason for failure by ligation above or below the sac, or both, lay in the collateral circulation. Extirpation in this case was fraught with danger because of the important nerves practically incorporated in the walls of the sac. Immediately he performed what was safest for the patient and also obliterated the cause of the recurrence,—that was obliteration of the collateral circulation from within the sac. All over the civilized world this procedure, now perfected and explained by our institution, has brought comfort and happiness to many. In the development of this procedure we see, as Guy de Chauliac stated in his characteristics for the surgeon, the rare combination of boldness and caution.

And now let us turn for a moment from the scientific contributions to those of a more general nature, for this institution embraces all phases of life. Our institution has been a backbone in your State in medical education; in the harmonious workings of your medical colleagues; its chief, when President of the Louisiana State Medical Society, was largely responsible for the beneficent Medical Practice Act which regulates your professional work; its fountain head has taken part in every effort here in the last half century to improve your sanitation and your public health. In this relation it is difficult to add to the encomiums heaped upon Dr. Matas so recently as a month ago when the sectional meeting of the American College of Surgeons was held here. His own oration relating to "What Medicine Has Done for the Welfare of the People of New Orleans and Louisiana" is in part autobiographic for in every advance he was a pioneer and a crusader daring the criticism of those less far seeing and less courageous. His recital of the advantages to your community of the benefits which have come through a knowledge of the causes, prevention or control of yellow fever, malaria, typhoid, typhus, cholera, bubonic plague, smallpox, diphtheria, and scarlet fever, are but a recital of the age old conflict between science and public opinion. It is common knowledge that many of the great figures of science were either scorned by the people or actually tortured because they dared to espouse openly discoveries which seemed unorthodox, though soon to benefit mankind. We have only to recall that Michael Servetus, who discovered the pulmonary circulation, was burned at the stake with all his books because he dared to tell the truth. We remember that in 1165 the Edict of Tours (Ecclesia Abhorret a Sanguine) declared surgery was not respectable. And we know that Dr. Zabdiel Boylston Adams, of Boston, in our early colonial day was chased by a mob and his life threatened because he had dared to inoculate a man with smallpox in order to protect him from a greater disaster. Dr. Matas' influence in this community has been as daring as those of the great figures in America who have long since departed. Beginning with his service in 1879 as clerk and laboratory assistant to the Havana Yellow Fever Commission of the U. S. National Board of Health, he has often, in the face of opposition, steadily labored for this great community. For this civic stand alone he deserves your perpetual gratitude. At the time of the Centennial of Medical Education in New Orleans in 1935 he spoke of "the influence of the last 100 years of medical education on the culture, growth and prosperity of New Orleans", but in this delightful and careful appraisal you will find no mention of his personal role. We who know him can appreciate this, for no man ever was more unassuming and self effacing or more apt to give praise and honor to others.

Dr. Matas, we rejoice to salute you as a man, as a surgeon, as an American institution. We have no desire to embarrass you, still young in spirit, with an epitaph and we realize that eulogy is hard to bear, but it is indeed a commonplace of our profession that your accomplishments exceed those of the teachers you yourself have so often extolled. If Chaillé, Richardson, Hunt, Bemiss, and Miles were here they would join us in this acclaim and they would agree that the prophetic words spoken by Andrew Woods Smyth have long been fulfilled and surpassed. You will remember that during the excitement which arose on the occasion of selecting Dr. Miles' successor, lay, civic and professional groups arose as a unit to urge your candidacy for the post which you adorned so gloriously for thirty-three years. Perhaps you recall Dr. Smyth's words: "Dr. Matas has genuine ability, which, in my judgment is superior in many respects to genius itself. He is beyond question the greatest surgeon New Orleans has ever possessed. There is nothing that he teaches that he does not exhaust. . . . I feel certain that the future will certainly corroborate the opinion which I now express regarding Dr. Matas, and any honor bestowed upon him will be justfied by history."

We, your friends, knowing of your eminent qualities of heart and mind, rejoice in all that has come to you. It is not my purpose to cite the honors and decorations which might have tainted the spirit of one lacking the beautiful humility and simplicity of your character. The impress of your personality upon students, associates, patients and colleagues is far above your scientific benefactions and is the corner-stone of the institution we celebrate tonight. We know that the love so richly expressed by these your friends will endure in your mind and heart long after the degrees, medals and citations which have been heaped upon you in past years have crumbled into dust. For you are a master in whose footsteps all are proud to follow.

Rudolph Matas, it is the ardent prayer of each one of us here tonight that in the years to come,—just as the Father of the Waters, which has made Louisiana to flower through the centuries, will continue to enrich this land,—you and your good deeds will serve and benefit mankind. For of you, as justly as of any other man, it may be said in the words of Abraham Lincoln, that you taught "hope to all, despair to none."

THE MEDICAL SOCIETIES OF LOUISIANA PRIOR TO THE WAR BETWEEN THE STATES

WILLIAM DOSITÉ POSTELL,
M. S., B. S. IN L. S.*
NEW ORLEANS

PART I

THE BACKGROUND OF MEDICAL PRACTICE

Historians of the future, like readers of the present, will owe a great debt to Dr. A. E. Fossier for his "record of things past."[1] In his history of Charity Hospital from its founding in 1736 as L'hôpital des Pauvres de la Charité to the date of writing (1923) and in his similar history of the Orleans Parish Medical Society from its organization in 1878 to the date of writing (1928), he has incorporated a vast amount of material dealing with the practice of medicine in New Orleans and Louisiana during those years. On the other hand, nothing seems to have been written concerning the medical societies of the State of Louisiana prior to the War between the States, and it is the aim of this paper to collect and record such material as can be gathered concerning them.

THE FRENCH AND SPANISH PERIODS

Up to the time of the Louisiana Purchase in 1803, very little seems to have been done either privately or publicly for the protection of the health of the inhabitants of the Mississippi Valley. Even after the founding of New Orleans and the institution of a city government in 1718, the entire territory was apparently without any form of quarantine restrictions or other organized health activity. Physicians and surgeons, most of whom were graduates of the University of Paris, were sent from the mother country to minister to the needs of the colony, but there is no record of the organization of a board of health or of any similar action by them or by the government. There was not very much more activity, furthermore, during the period of the Spanish domination.

The founding of Charity Hospital is one of the few bright spots in the medical history of these years. In 1736 a French sailor, Jean Louis, who had become a resident of New Orleans and who had earned what he possessed "in this country irreproachably," left the residue of his estate to found a hospital for the poor of New Orleans. It bore the name of St. John, and the following year Bienville wrote to the Minister in France that it served the dual purpose of hospital and asylum to the indigent poor and that it had five patients. In 1779 the building was destroyed by a hurricane which left only the kitchen and storehouse, and for the next years the sick paupers wandered through the city and perished on the streets. No record exists of the physicians who practiced in the first hospital and during this time and for several years thereafter professional men seem to have had little to do with the management of the institution.

In 1782 funds for rebuilding, which had been offered as soon as the hospital was destroyed, were finally accepted by King Charles III of Spain from Don Andreas de Almonaster y Roxas, a wealthy nobleman. The gift was in the sum of $114,000, and the new institution, which was completed in 1784, was named Hôpital St. Charles. It received thereafter frequent legacies in the wills of pious French citizens, but conditions in it were chaotic, chiefly because appointments were made entirely on a patronage basis.

---

*Librarian of the School of Medicine, Louisiana State University.

In 1770 the Governor of Louisiana, Alexandro O'Reilly,* issued what is apparently the first decree[2] relative to the practice of medicine and surgery in the Colony. It read: "No surgeon shall have the right to practice surgery and medicine unless he produce his documents, his certificates of study, his books, his instruments; unless he submit to an examination before the King's physician; unless he have certificates of good character and of Catholic faith."

Rules and regulations for the duties of physicians and surgeons were also laid down in some detail and with considerable commonsense. Governor O'Reilly was extremely unpopular, but this document is additional testimony to his remarkable executive ability and good judgment.

It was during the period of Spanish domination that yellow fever first made its appearance in New Orleans. A disease which closely resembled it had ravaged the city in 1765, but the date of the first epidemic is usually given as 1791 or 1796. It was highly fatal from the first, and the death rate was at times as high as 72.86 per thousand. On May 9, 1794, Baron de Carondelet, who was then the governor, recommended the excavation of what today is known as the Old Basin Canal, for the purpose of draining the stagnant water of the city into Bayou St. John. This stagnant water was regarded, probably with considerable reason, as the cause of the epidemics which were proving so fatal in the city.

THE AMERICAN PERIOD

Immediately after the American occupation of the Colony, in 1803, more active attempts were made to improve sanitary conditions in New Orleans. In 1806 the City Council recommended by resolution that the forts around the city be evacuated and destroyed and that the ditches which surrounded them be filled up. Governor Claiborne,[3] in reply to the resolution, wrote: "I am strongly impressed with the opinion that the stagnant water which accumulates in the old fortifications must prove injurious to the health of the city, that I cheerfully consent to the leveling of all of them, except those of Forts St. Charles and St. Louis . . ."

Two years later the Council[4] requested that the Governor consent to the leveling of Fort St. Louis and the filling up of the trenches which surrounded it ". . . inasmuch as it impeded the communication between the town and the suburb St. Mary, and the trenches were receptacles of stagnant water . . ."

In the same year (1808) the Governor himself recommended to the Legislature the policy of making general laws to enforce cleanliness and to subject the shipping entering the Mississippi River to quarantine regulations. It was not until ten years later, however, that the first Board of Health was appointed and quarantine regulations were drawn up. Governor Villeré urged both steps in his annual message to the Legislature (January 6, 1818)[5] and the necessary acts were passed and were approved by him March 17, 1818.[6]

Meantime steps had been taken to improve the deplorable conditions at Charity Hospital. The first legislative act referring to it was passed by the Legislative Assembly of the Territory of Orleans in 1808 and was approved by the Governor March 8 of that year. Three years later the Marquise de Pontalba relinquished to the city her rights and privileges as patroness of the Hospital and made it possible for the Legislature to enact the law which may be considered the charter of the present institution. This act, among other items, provided for a Council of Administrators, six of whom were to be appointed by the Governor and three by the City Council.

In 1809 the hospital was destroyed by a fire which swept the city and for the next years the patients were moved from one temporary building to another with so much suffering that, according to the record, "no one, however wretched and poor, will now consent to be committed to that Hospital." In 1814 ground was purchased and a 120-bed building erected which served also as an asylum for lost children. A house surgeon was put in charge, and the physicians of the city visited the institution in turn. In 1832 the site on which the hospital is now located was purchased and a building was erected the next year at a cost of $150,000. This building was still in use in 1936, when the grounds were cleared for the erection of the present new and modern building.

---

*Names frequently vary in spelling in different documents and even in the same document, and initials are frequently omitted. The author in all instances has followed the spelling of the document used for the immediate reference.

REGULATIONS CONCERNING THE PRACTICE OF MEDICINE

In 1808 the Legislature passed the first act establishing the standards and procedure for those who wished to practice medicine in New Orleans. It was called "An Act concerning Physicians, Surgeons and Apothecaries," and it was signed by Governor W. C. C. Claiborne, March 23 of that year.[7] It provided for an Examining Board composed of four physicians and surgeons to be appointed by the Mayor of New Orleans from among the oldest practitioners in the city. The candidate who desired the right to practice in the city must present to the Board the diploma from the university, school or college in which he had pursued his medical studies, and must, in addition, submit to examination by the Board.

Most of the physicians who had drifted into New Orleans after the Louisiana Purchase were graduates of the Eastern medical schools, including the University of Pennsylvania, Jefferson Medical College, the University of the City of New York, and Harvard Medical College. The French physicians, as has been pointed out, were chiefly educated in Paris. Along with these legitimate physicians were a large number of quacks, and the act of 1808, laudable as was its purpose, had the defect of making no provision for their elimination, for physicians residing in the Territory prior to its passage were not required to submit to examination. The act also failed to provide any penalty for failure to comply with the licensing provision, which again left the field open for quacks and incompetents.

This deplorable state of affairs continued until 1816, when a new act was passed prescribing the formalities to be observed for the practice of physic or the profession of apothecary within the State of Louisiana.[8] Penalties were now enacted for failure to comply with its provisions. The examining board set up by this act consisted of four physicians and one apothecary, all to be appointed by the Governor instead of by the Mayor, as in the former act. In 1817 a supplementary act was passed setting up two medical examining boards for the two judicial districts of the state. The Eastern Board was to meet in New Orleans and the Western Board in Opelousas.

SANITARY REGULATIONS

Public health regulations, restrictions upon the unlicensed practice of medicine and surgery, and improvement of conditions at Charity Hospital had resulted, however, in little improvement in the general health. Yellow fever continued its devastation, and in 1818, 1,152 persons died of it. The people themselves, furthermore, either had no faith in quarantine laws, or, what seems more likely, objected to the fashion in which these laws interfered with the commerce of the city. Whatever the reason, the 1818 act[9] which had established the Board of Health and set up quarantine laws was repealed in less than a year (March 6, 1819) and the Governor was authorized to establish quarantine regulations at his discretion and by proclamation.

December 18, 1820, Governor Robertson, in his inaugural message, urged the Legislature to establish quarantine regulations against yellow fever, and in February, 1821, the Legislature passed the requested act. It created a Board of Health "with plenary powers, legislative, judicial, executive, pecuniary and sanitary modeled after codes the most rigid and enforced by the heaviest penalties." The regulations were put into effect in March of that year and continued in effect until February 19, 1825 when, apparently because of lack of faith in their efficacy, they were again repealed.[10]

An ordinance for the establishment of another Board of Health in New Orleans was again passed by the General Council in June, 1841, and the Board functioned during that year. During this period, however, another epidemic of yellow fever occurred, destroying 1,641 of the inhabitants of the city, the interest of the members fell off, and the Board dissolved itself in 1843. Several apparently abortive attempts to re-establish it are observed in the Acts of the General Council dated August 15, 1846, and June 23, 1847, and in the Acts of the Legislature of Louisiana dated March 6 and May 15, 1848.[11]

On March 15, 1855, an effective act was finally passed. In his Report of the Board of Health for 1882 Dr. Joseph E. Jones[12] wrote: "All the great sanitary and quarantine measures of the past 27 years in Louisiana, may be directly or indirectly traced to the act 'to establish quarantine for the protection of the State' approved by P. O. Hébert, Governor of the State of Louisiana, on the fifteenth of March, 1855. During the preceding 155 years of the existence of the Colony, province and State of Louisiana, the sanitary and quarantine efforts of the people were spasmodic, unsatisfactory and of short duration; and as a consequence, at frequent and short intervals, the people were decimated by foreign pestilence, imported by maritime men and immigrants . . . up to the present moment the great principles embodied in the twenty-nine sections of this act have not been withdrawn."

In the decade beginning in 1830 New Orleans in some respects reached the greatest development in its history. Its harbors were crowded with shipping from all over the world, and its people as a whole were prosperous. Yet with all the prosperity, as can be gathered from the foregoing statement of facts, conditions were incredibly bad as to health and sanitation, and the death rate was nothing short of appalling.

MEDICAL EDUCATION

It was at this time that the first medical school in Louisiana was organized by the efforts of a few physicians, Drs. Thomas Hunt, John Harrison, Charles A. Luzenberg, J. Monroe Mackie, Thomas R. Inglass, Augustus Cenas, and Edward H. Barton. The French-speaking physicians of the city, who had chiefly been educated in Paris, were very much opposed to the idea, but the school nevertheless opened January 5, 1835, with eleven students and with a few friends of the Faculty as guests at the lectures. This school, which is now Tulane University of Louisiana, has had a continuous existence since that time with the exception of a few years during the War between the States when all educational efforts were in abeyance.

It is interesting to note the reasons why the founders[13] selected New Orleans as the site of the school, for the words have a very modern ring: "Because its hospitals, which will be opened to the undersigned for the purpose of instruction, are the largest in the Southern and Western states, so that practical medicine and surgery can be taught at the bedside of the patient, the only place for this study."

In 1843 the professors of this College of Louisiana petitioned the Legislature and obtained the right to attend the wards of the hospital free of charge for ten years, a privilege which the other physicians of the city did not look upon with equanimity. At the same time six students "of good moral character" were permitted to live in the hospital and do minor operations.

November 7, 1856, another medical school, the New Orleans School of Medicine, opened its doors for the first time. At this time Charity Hospital had no out-patient department and the dispensary which the new school operated was the only out-patient department in the whole Southwest and was hailed as a distinct contribution toward medical education. The first faculty consisted of Drs. E. D. Fenner (Dean), A. Forster Axson, Thomas Peniston, Samuel Chopin, Isaac L. Crawcour, Howard Smith, John M. W. Picton, D. Warren Brickell, Cornelius C. Beard, and Anthony A. Peniston. The school continued with varying success for a number of years, but was finally forced to close its doors in 1870.

Meantime the Special School of Medicine of the Louisiana Seminary of Learning lasted only for a single session, in 1865.

In 1837 a site upon which to erect a marine hospital for the port of New Orleans was purchased at Macdonough's on the right bank of the Mississippi River, opposite New Orleans. Building was begun in 1838 and was completed in 1849, at a total expenditure of $122,772.70.

This, in brief, was the situation in Louisiana in respect to the practice of medicine, medical education, hospitals, and board of health and sanitary regulations from the founding of the Colony, through successive French, Spanish and American rule, up to the War between the States.

PART II

THE MEDICAL SOCIETIES OF NEW ORLEANS 1817-1854

THE FIRST SOCIÉTÉ MÉDICALE DE LA NOUVELLE ORLÉANS

The yellow fever epidemic of 1817 seems first to have made it clear to the physicians of New Orleans that some organized effort on their part was necessary to promote the health of the city and to combat the ravages of this particular disease. Accordingly, the Société Médicale de la Nouvelle Orléans was organized in that year and continued active until 1821. It was reorganized in 1835 and lapsed again in 1837, continuing inactive until 1859, when it was organized for the third time, to end its activities finally in 1861.

A brief notice, printed in French and English, in the Courrier de la Louisiane[14] for January 7, 1818, advises that: "The Medical Society of New Orleans will hold its first public sitting on Sunday next the 11th at 12 o'clock in the city council room.

Jan. 5 Taillefer, Secretary"

The society was legally incorporated in 1818 by an Act[15] which states in part:

"Sec. 1. Be it enacted by the Senate and House of Representatives of the State of Louisiana in general assembly concerned: That the members of said Medical Society, that is to say V. J. B. Trabue, Cyprion Gros, and all such persons who may be associated with them for the purpose aforesaid, they and the same persons are, and shall be a body corporate and politic, for and during the space of fifteen years, in deed and in law, by the name and style of 'The Medical Society of New Orleans' . . . to have succession for and during the term of fifteen years . . .

"Sec. 5. And be it further enacted, that the purpose of the aforesaid incorporation, being exclusively for the development of medical knowledge and the extension of science in general . . .

Signed
Myre. Guichard
Speaker of House of Representatives
N. Meriarn
President of the Senate.

Approved Feb. 16, 1818"

Also of interest is an Act of the Legislature[16] approved February 28, 1818, authorizing the Medical Society " . . . to raise by lottery a sum of money not exceeding fifteen thousand dollars for the purpose of purchasing a library, philosophical apparatus . . . and defraying other incidental expenses of the institutions."

Whether the Society ever took advantage of this permission is not clear, but there was nothing unusual in it. At this time it was entirely proper to raise money for churches, schools and other worthy institutions by lottery, and Charity Hospital regularly received part of its funds from this source. No remains of the proposed library or philosophical apparatus, however, exist today.

One of the first acts of the Society after its first organization seems to have been an analysis of the causes of the yellow fever epidemic of 1817 and the treatment of patients during it. The report, which was prepared by Drs. Gross and Geradin and which was entitled "Rapport fait à la Société Médicale, sur la fiévre jaune qui a regné pendant l'été de 1817," was apparently well drawn, for it was quoted in part in the American Medical Recorder of 1819.[17]

It was also referred to in the annual reports of the Louisiana State Board of Health for 1882 and 1883 and in the Proceedings of the Louisiana State Medical Society for 1852. Reference is made in these sources to a second report[18] from the Society for the year 1819, as well as to " . . . a most interesting, precise analitique of the labors of the same society, August, 1817 to January, 1818."

THE FIRST PHYSICO-MEDICAL SOCIETY OF NEW ORLEANS

The second organization of physicians in Louisiana was incorporated in 1820 under the name of the Physico-Medical Society of New Orleans, and, like the French society, had a checkered career. It lapsed into inactivity in 1821, although it continued to exist until 1838. It was reorganized in 1844 and thereafter was fairly active until 1860 or 1861.

It must be borne in mind that the first medical society in New Orleans was composed chiefly of physicians of French descent, although a large number of Americans of English extraction had by this time migrated to Louisiana. They found themselves out of place, naturally, in an organization in which French was the spoken language, and for this reason the Physico-Medical Society of New Orleans, which was incorporated February 16, 1820, was composed chiefly of English-speaking physicians. The first section of the Act[19] of incorporation reads:

"Sec. 1. Be it enacted by the Senate and House of Representatives in general assembly convened, that William Rogers, R. Davidson, L. Harmon, G. C. Forsyth, J. G. Purnell, G. Marshall, S. Alexander, W. W. New, J. S. Vancourt, J. Rice, D. Holt, Colls, J. E. Kerr, J. M. S. Conway, W. N. Mercer, and R. C. Randolph, and others of the said society, shall from and after date of passing this act be, and they or their constituted a body politic, and in deed and in law, which shall be entitled the 'Physico-Medical Society of New Orleans.' "

The constitution of the new society provided for fellows, who were to be elected from among physicians and "other literary persons" residing in the vicinity, and for corresponding members, who apparently answered the same qualifications but were non-residents. Meetings were held on the first and third Saturdays of every month, at 6:30 p. m., from November to May and monthly during the remainder of the year, at 8 p. m. Article 6 of the constitution[20] reads: "At these meetings some subject relating to the medical sciences, or a dissertation on the topics connected with medicine shall be read and defended by the author."

Like their French confrères, the physicians of this society turned their attention to yellow fever and one of their first efforts was an analysis of the epidemic of 1820.

What the society did between its organization in 1820 and the year 1838 is not clear. Even so prolific a writer as Dr. Joseph Jones apparently does not know, for he mentions the organization of the group and then has nothing further to say of it until 1838, for which year he lists the following officers and members:[21]

"Dr. R. Davidson, president; Dr. J. S. McFarlane, vice-president; Dr. J. Harrison, corresponding secretary; Dr. J. M. W. Picton, recording secretary; Dr. J. O. Meux, treasurer; Dr. Thomas Hunt, curator. Fellows—Drs. F. Holt, J. Rice, E. H. Barton, E. B. Harris, C. F. Snowden, F. Beatty, J. S. Crockett, A. Davezac, J. M. Mackie, G. W. Campbell, J. J. Ker, S. W. Ruff, Farrell, G. Bettner, V. Carey, L. Labatut, W. Rushton, J. Jones, W. Stone, W. Wilcox, Kittridge, J. J. Osborne, Palmer, J. U. Landreaux, J. Galerido. Associates—Dr. O. C. Ker, Dr. James Warren, Rev. T. Clapp, Dr. Wheaton, General E. W. Ripley, L. S. Parmley, Hon. F. L. Turner. Corresponding members—New York—Drs. Mott, Francis, Pascalis; Philadelphia—Drs. Parish, Chapman, Patterson; Boston—Drs. Warren, Jackson; Lexington, Kentucky—Drs. Caldwell, Dudley; Ohio—Drs. Drake, B. C. Marshall; Baltimore—Drs. Potter, Davidge; New Haven—Dr. Ives; Portland—Dr. Thatcher; Virginia—Drs. Wilford, Brown, Buck; District of Columbia—Dr. H. Hunt; Mississippi—Dr. Randolph; Augusta—Dr. Toolsom; Louisiana—Drs. J. D. Smith, French, Forsyth; U. S. Army—Dr. Harvey; Alabama — Drs. Levert, Fearn, Mecklin; France—Drs. Chevrin, Gerardin."

THE SECOND SOCIÉTÉ MÉDICALE DE LA NOUVELLE ORLÉANS

In fact, after 1821 both French and English societies seem to have languished for a period of years. Yellow fever, the chief reason for the organization of both groups, was temporarily in abeyance, and nothing else developed to inspire their further activity. Matters continued in this state until 1835, when the Société Médicale de la Nouvelle Orléans was again incorporated by the Legislature, this time for a period of 18 years, with the following members:[22] F. Formento, E. Fortin, Puissan, J. M. Picton, F. Grandramps, A. Delpouch, S. L. Biamonti, H. Bonnabel, A. Byrenheidt, S. W. Dalton, L. Deloche, J. Dufilho, E. B. Harris, M. Halphen, L. Gomatis, J. Labatut, A. P. Lambert, L. Landreaux, T. Leger, J. Lemonier, J. Martin, F. Plaix, W. Rushton, D. Senac, and Thomas T. Ticou.

The act of incorporation provided for the appointment of two physicians to serve in an advisory capacity in regard to the sanitary police of the city, at the disposition of the Mayor and City Council, and also provided that the "Society keep in the City of New Orleans a depot for vaccine matter" to be furnished to the physicians for the State of Louisiana. It will be recalled that from 1835 to 1841 the city had no Board of Health, which makes clear the necessity for such public services from the members of the society.

From its reorganization in 1835 until the year 1839 nothing is available concerning the activity of the reorganized French society. In that year the first medical journal ever published in the city was founded under the name "Journal de la Société Médicale de la Nouvelle Orléans", though unfortunately it lasted less than a year, being discontinued then either because of lack of interest or lack of funds. Copies are exceedingly rare, and no library, so far as can be ascertained, has the complete file.

For a brief period the French society seems to have been fairly active. The index of the Journal lists a report made before the group on the yellow fever epidemic of 1837,[23] and Charles Deléry, in his "Précis historique de la fiévre jaune Nouvelle Orléans" mentions a memoir by Bahier, Martin, Daret and Fortin which was also printed in this journal.[24] When the journal was discontinued, however, the activities of the society which sponsored it also came to an end, and until the second reorganization in 1859 the Société Médicale de la Nouvelle Orléans ceased to exist.

The period immediately following 1839 was a very gloomy one in the medical annals of New Orleans. The medical college was languishing. It had never had a suitable building and the enrollment had never exceeded 35 or 40 students. No medical journal was published. The Physico-Medical Society, wrote Dr. Logan, "was asleep," and the French-speaking medical society had ceased to function.

THE LOUISIANA MEDICO-CHIRURGICAL SOCIETY

Largely through the efforts of Dr. C. A. Luzenberg a new medical society was organized in 1843 and was incorporated April 1 of that year as the Louisiana Medico-Chirurgical Society (Société Médico-Chirurgical de la Louisiane) in the following act:[25]

"Sec. 1. Be it enacted by the Senate and House of Representatives of the State of Louisiana, in general assembly convened:—That Doctors J. F. Beugnot, H. Tricou, C. de Valletti, U. Landreaux, P. A. Lambert, J. Labatut, Dowler, Puissan, Harlan, Mercier, Dupas, Barbe, Thomas, C. A. Luzenberg, J. G. Osborne, H. Lewis, John Rhodes, Slade, Easton, Davezac, Hester, Ridgely and E. D. Fenner and all other persons who may be legally, hereafter, associated with them be and they are hereby created a body corporate under the title 'The Louisiana Medico-Chirurgical Society'."

The Society held its first meeting April 13, 1843. At this time it adopted a constitution and by-laws, and elected its officers, which was not a very simple matter, for it was composed of both French and

English physicians. Dr. C. A. Luzenberg, who was bilingual in addition to his other qualifications, was unanimously chosen the first president.

The Louisiana Medico-Chirurgical Society is in a sense the first state medical society, for every licensed physician and surgeon in Louisiana was, *de facto,* a corresponding member. The resident membership consisted of physicians and surgeons living in New Orleans and the adjacent city of Lafayette (now a part of New Orleans and not to be confused with the present city of Lafayette, in Lafayette Parish).

There still being no Board of Health in New Orleans, the General Council invited the new society to take charge of the sanitary interests of the city, and nine members were appointed, with full powers to act as health commissioners. The Society was also bound "whenever required by order of any Court of Justice, within the cities of New Orleans or Lafayette, to make toxicological examinations," and to make a faithful report of the same in writing.

Early in 1844, Dr. E. D. Fenner and Dr. A. Hester founded "The New Orleans Medical Journal," which has had an almost continuous existence to the present time, being suspended only during the war years in the sixties and for two or three years in the seventies. Shortly after its founding the name was changed to "The New Orleans Medical and Surgical Journal," which title it has borne ever since except from 1868 to 1870, when it was known as "The New Orleans Journal of Medicine."

The new journal reported that at the first anniversary meeting of the Louisiana Medico-Chirurgical Society in April, 1844, the Governor of the State and the President of the Senate were among the honored guests. There was a general feeling that the organization of the society, with its provision for friendly and social intercourse between French and American physicians, was an excellent thing, and for several years the group was very active.

Among the papers presented in these years was one by Drs. William G. Williams and James Andrews dealing with the yellow fever which prevailed during the autumn of 1843 at Rodney, Mississippi. Other reports on yellow fever were made by Dr. P. A. Lambert (in French) and Drs. C. de Valetti and Thomas M. Logan, the latter dealing with a recent epidemic at Woodville, Mississippi. A case of Malis Oestri in the human subject was reported by Thomas Peniston, M. D.

In 1846 the society offered a gold medal, of a value of one hundred dollars, for the best essay on "Strictures of the Urethra, with Their Treatment." The essay could be written in either French or English and was to be presented to the president of the group not later than February 1, 1847. Only two essays seem to have been received by the first Wednesday in April of that year, when another anniversary meeting was held, and the award was deferred to February, 1848. Whether it was ever presented is not known, for after 1847 the society ceased to function actively.

Dr. Thomas M. Logan,[26] writing in 1849, deplored the cessation of the activities of this society, as follows: " . . . since the anniversary meeting of 1847 the Medico-Chirurgical Society has languished until it has fallen into complete decay. It has done no scientific business for two years past, and as if with the view of giving it the coup de grace and terminating its agonies, a small number of members less than a legal quorum, recently got together, gave away its funds, and adjourned sine die. Thus the Society may be said to be dead."

Dr. Logan's appeal to preserve the funds and archives for the nucleus of a future organization apparently went unanswered and the third medical society of the state ceased to exist after six years, four of which seem to have been filled with activity.

THE SECOND PHYSICO-MEDICAL SOCIETY OF NEW ORLEANS

Meantime the Physico-Medical Society, which had been inactive since 1838, had been reorganized December 1, 1844,[27] with a new constitution and the following officers: Dr. Thomas Hunt, president; Drs. Picton and J. O. Meux, vice-presidents; Dr.

C. F. Snowden, corresponding secretary; Dr. A. F. Axson, recording secretary; Dr. G. W. Campbell, treasurer; Dr. W. W. King, curator.

From all accounts, this society was the most active of all of the early medical organizations. It held semi-monthly and monthly meetings, which were apparently well attended by the regular members, medical students, and other invited guests. The meetings were held at the Medical College on the first and third Saturdays from December through May and once a month through the remainder of the year.

The programs consisted of three parts: (1) An essay on some subject in medicine or natural philosophy; (2) the discussion of some set question; (3) observations by each member on the diseases of the day. Interesting accounts are available of some of the discussions and reports. In February, 1845, for instance, a Dr. Hort[28] read an article dealing with quarantine laws. On motion of Dr. Farrell it was turned over to a committee of five members (Drs. Farrell, Hort, Jones, Axson and Dowler) appointed by the president, who at the following meeting summed up its principal conclusions, as follows:

"1. That they believed that yellow fever was of local or domestic origin.

"2. That it is not an imported disease.

"3. That it is not contagious . . . .

"8. That there is no occasion for quarantine laws. That experience has shown them to be useless here, while they would be very expensive, highly injurious to our commercial interests, and onerous to the passengers."

In 1849, for the first time, delegates from Louisiana were sent to the Convention of the American Medical Association, which was held in Boston May 1. At the meeting Professor James B. Jones, one of the delegates, who was a member of the Medical Department of the University of Louisiana, was nominated to the Committee on Practical Medicine, and Dr. J. C. Simonds, the other delegate, was elected to the Committee on Hygiene.

At the anniversary meeting in 1850 Dr. Hunt was re-elected president. Other officers elected included Drs. Farrell and Bein, vice-presidents; Dr. J. C. Simonds, corresponding secretary; Dr. Howard Smith, treasurer; Dr. J. A. Nott, curator; Dr. Macgibbon, recording secretary; Dr. E. D. Fenner, orator.

During this year a committee was appointed to study epidemic colic, which had made its appearance for the first time during the summer, and the report was read by Dr. E. D. Fenner. A committee composed of Drs. Jones, Riddell and Axson, which was appointed to study the subject of lead poisoning, later reported that lead was found in carbonated water but not in river water. According to the Annual Report of the Board of Health of New Orleans and Lafayette for the year 1850 the Society again supported the report of Dr. Harrison, which had previously been recorded in its transactions, "in regard to the practice of warding off the deadly assaults" of yellow fever.

The anniversary meeting in 1851 was celebrated with an appropriate oration by Dr. E. D. Fenner, the duly elected orator. Dr. Farrell was retained as one of the vice-presidents, Dr. Macgibbon as recording secretary, Dr. Simonds as corresponding secretary, and Dr. Nott as curator. Dr. James Jones was elected president and Dr. Bein was one of the vice-presidents.

At a meeting held October 2, 1852, Professor J. L. Riddell demonstrated the binocular microscope which he had devised and manufactured and which was to prove later of untold advantage to science. At other meetings of this year the society investigated a case of "fatal poisoning from sugar plums," and passed a resolution on the death of Daniel Drake, M. D., and at the last meeting elected Dr. A. F. Axson president.

In 1854 Dr. R. Bein was president and a Dr. Chappin vice-president. At the January 7 meeting Dr. Fenner reported a case of thrombus occurring in a negro woman after delivery of her first child. At the February 4 meeting Dr. Thomas Hunt reported a case of paralysis of both upper and both lower extremities. At the same meeting Dr. Axson reported several cases of scarlet fever, Dr. Meux a case of tetanus, Dr. R. Gale several cases of severe diarrhea, and Dr. Chappin two cases of measles. Later in the same year reports were heard on cases of measles, diarrhea, dysentery, scarlet fever, neuralgic cholera, and urethral stricture, as well as a case of imperforate anus which had been entirely relieved by surgical treatment at Charity Hospital.

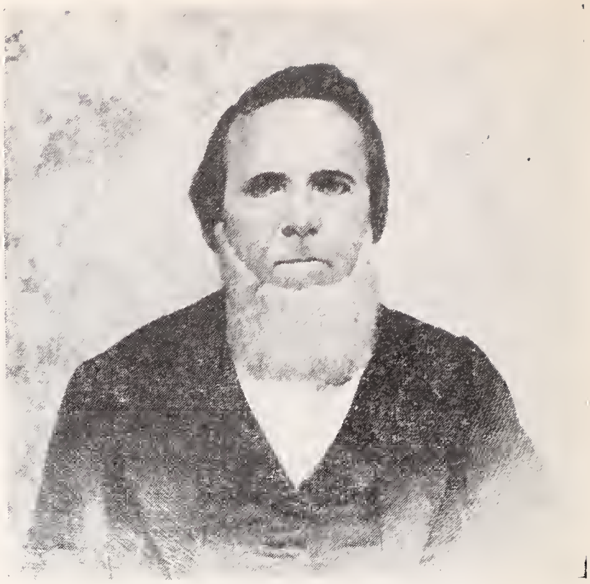
At the anniversary meeting in December, 1854, Dr. A. Mercier delivered the oration and deplored, among other things, the lack of progress in medicine as compared to surgery, though this was long before the days of Pasteur and Lister. The activities of the society seem to have ended in 1858, with a discussion of the radical cure of inguinal hernia. Why so active a group should have so suddenly ceased to function is not clear.

(*To be continued*)

SAMUEL A. CARTWRIGHT AND STATES' RIGHTS MEDICINE*

MARY LOUISE MARSHALL†

NEW ORLEANS



SAMUEL ADOLPHUS CARTWRIGHT
(1793-1863)

As one of the most colorful figures of Southern medicine in the first half of the last century, it is surprising that so little present-day recognition has been accorded Dr. Samuel A. Cartwright, of Natchez and New Orleans. In a day when medical journals were few, he published more than eighty articles** before his death in 1863; his physiologic experiments on the Louisiana alligator attracted much attention and controversy; his therapeutic innovations were marked by originality, and his opinions were noted as befitted his reputation for medical learning and experience.

Samuel Adolphus Cartwright was born in Fairfax County, Virginia, on November 30, 1793. He was the son of Rev. John S. Cartwright and came of a family of poets, scholars and inventors. Being determined to become a physician, he began to study medicine under the supervision of Dr. John Brewer, in his native county, but his studies were interrupted by the War of 1812, in which he enlisted. In the Battle of North Point, while serving in Tanson's artillery, he received an injury which resulted in a slight deafness that became progressively worse until his death.

Leaving military service after his injury, he resumed his medical studies, in the office and under the direct supervision of Dr. Benjamin Rush. He left, however, before receiving his degree from the University of Pennsylvania, to begin practice in Huntsville, Alabama. In one of his articles he refers to some years of study in Maryland, probably in Baltimore, for it was from here here that one of his most signal honors was conferred upon him.

In 1822, he moved to Natchez, Mississippi, and the following year he won a prize offered by the American Medical Recorder for an essay on the Epidemic Fever of Monroe County, Mississippi, in the summer and autumn of 1822. It is probable that his observations on this epidemic were made while he was en route from Huntsville to Natchez; he may have remained in Monroe County for several years, but there is no record of extended practice there.

---

*Read before the Orleans Parish Medical Society, March 11, 1940.

†Librarian of the Rudolph Matas Medical Library of Tulane University and Assistant in Charge of the Library of the Orleans Parish Medical Society.

**The author wishes to express to Dr. Rudolph Matas her grateful appreciation for the privilege of consulting his bibliographic notes, compiled in the preparation of his History of Medicine in Louisiana.

Dr. Cartwright was a Latin and Greek scholar of some years, and he now studied French. He took his examination before the Western Board of Medical Censors and received his license to practice in this extensive area.

Within a year or so after he moved to Natchez, he contracted yellow fever. He was cared for by the Rev. Mr. Burruss, in a laundry shed near Mr. Burruss' home, about a mile and a half from Natchez, directing his own treatment. None of the family contracted yellow fever and Dr. Cartwright attributed this to cleanliness, fresh air and careful nursing.

In 1825, he married Mary, eldest daughter of Dr. Woodson Wren. This same year occurred another disastrous yellow fever epidemic and this siege is said to have afforded Dr. Cartwright and "his life-long friend, Dr. John W. Monette, their first opportunity to acquire distinction in their profession." A contributor to DeBow's Review says: "They soon placed their reputations among the best contributors to the medical literature of the day, secured for them both a practice always lucrative, which it is believed never waned while they chose to attend it."

At this time was published his "Essay on Syphilis," introducing in this country the use of large doses of calomel in its treatment. The following year he published two prize essays. The first, an ambitious study of some 84 pages dealt with the causes, symptoms, morbid anatomy and treatment of some of the principal diseases of the Southern states, the first of many on this subject. Dr. Cartwright believed that in a climate so different, the aspect of many diseases varied from the normal; in addition, there were many diseases encountered in the South, which physicians in the North were never called upon to treat. For this reason, he sponsored the education of Southern medical students by Southern physicians in their own locale, and became known throughout the medical world of his day as a specialist in the diseases of the South.

In 1826, he published an essay on "Cholera Infantum," for which he received a prize of one hundred dollars from the Medical and Chirurgical Faculty of Maryland. In this year also, a gold medal was awarded to him by the Boylston Medical Committee of Harvard University for his dissertation on "Whether the Veins Perform the Function of Absorption."

It is not surprising that Dr. Cartwright's knowledge of the diseases peculiar to his locale should have reached the attention of Dr. Daniel Drake. His article on the use of iodine in certain infections occurring in the South is reviewed in the Western Journal of Medical and Physical Sciences, edited by Dr. Drake, and Dr. Cartwright is referred to as "an ingenuous and indefatigable physician." In 1827, the American Medical Recorder comments editorially on his "valuable discovery respecting the diseased state of the ganglions and nerves from the spinal marrow."

His surgical contributions, though few, are interesting. In 1829, he reports in the Transylvania Journal of Medicine, a case of epilepsy cured by operation with a trephine; and in 1832, he announces a contrivance for use in wounds of the lung, empyema and dropsy, to drain the "thorax of liquid, at the same time excluding the admission of air." This latter observation received notice in the London Medical Gazette.

In 1832, a terrible cholera epidemic broke out and Dr. Cartwright was again in the front of the fight. He was unusually successful in the treatment of Asiatic cholera and his written observations were quoted widely in this country and abroad. He was offered professorships in Boston, Philadelphia, St. Louis, and Baltimore, but he preferred to remain in the far South. In 1834, certain citizens of Pine Ridge, Adams County, Mississippi, presented Dr. Cartwright with a "splendid vase with suitable inscription" and one thousand dollars as a testimonial of their sense of his eminent services in the year 1833 during the prevalence of cholera.

Having accumulated a handsome fortune, in 1836, he went with his family to Europe for eighteen months' travel in France, England, Italy, and Switzerland, where he was received most cordially, studying and attending clinics throughout his trips. His treatise on yellow fever was adopted by the French Government. While in Paris, undergoing a course of treatment for his deafness, Dr. Cartwright was called home by the failure of the New Orleans firm which cared for his fortune. He returned to Natchez and spent the following ten years in arduous practice, with a three months' tour of the North in 1847 for the benefit of his health and to gather new medical information.

During this second period of active practice in Natchez, Dr. Cartwright made several interesting observations: First, an article on the health preserving properties of the Jussiere grandiflora, or floating plant (1840), which is reprinted in full in Daniel Drake's Principal Diseases of the Interior Valley of North America. He based his proof on the fact that the plant purified the waters on which it grew, and notes the remarkable exemption of the inhabitants of the surrounding area from malaria and miasmatic diseases. Mississippi had at this time annulled its laws regulating medical practice and in another report, Dr. Cartwright by statistical analysis shows the resulting enormous increase in mortality. In 1846, before the medical convention in Jackson, Mississippi, he argued in favor of organization against quackery and patent medicines and for Southern diseases to be studied and treated by Southern doctors. In 1842, he presented, before the Natchez Medical Society, a synopsis of medical etiquette which was unanimously adopted by that organization and indeed merits recognition by the medical profession of today.

From this time on, Dr. Cartwright began to confine his study and writings to Southern diseases and Southern therapy, and was severely criticized for his ideas in this regard by Dr. John Bell who was responsible for naming him the sponsor of "states' rights medicine." Dr. Cartwright warmly answered Dr. Bell's attack before the Mississippi Medical Convention in 1846.

In 1848, he came to New Orleans to study cholera in the Charity Hospital and to witness a great number of autopsies on cholera subjects. He decided to remain in New Orleans and continue his practice in this city, and, in 1849, published a small pamphlet entitled "Pathology and Treatment of Cholera, with an Appendix Containing Latest Instructions to Planters and Heads of Families"; this publication was widely reviewed. In view of the present knowledge of the transmission of cholera his advice to planters is interesting: "Remove the sick and well to a new locality immediately on the appearance of the disease. Cholera poison follows a road, river, hedge or ditch and has a tendency to rest in houses whether inhabited or not." The Boston Medical and Surgical Journal observed: "Such is the reputation of Dr. Cartwright for both professional skill and learning that this publication is unquestionably exerting a commanding and sanitary influence in the region of the country for which it was prepared." The editor of the New Orleans Medical and Surgical Journal says: "Dr. Cartwright is extensively known throughout the South as an able writer and medical philosopher. He has written much and well on political as well as on medical subjects, and in both departments he wields a ready and an able pen. In starting new issues or in sustaining old ones, he is equally original and maintains his position with inflexible firmness and illustration. . . . His opinions have great weight with the public on all subjects connected with medicine. He has been for nearly half a century a practitioner of medicine in the South where he has enjoyed extensive opportunities for studying our peculiar diseases." The political writings referred to sponsor the South's attitude toward slavery, which Dr. Cartwright argued was justified both ethnologically and on Biblical authority.

In 1851, he was appointed Chairman of a Committee of the Medical Association of Louisiana to report on diseases of the negro. This study also stresses the importance of the study and treatment of diseases in the South by physicians trained in this locality. He became Professor of Diseases of the Negro, in the Medical Department of the University of Louisiana—later Tulane University of Louisiana School of Medicine. So far as can be ascertained, this is the only Professorship in Diseases of the Negro ever established in any American medical school.

The following year a series of articles appeared in which Dr. Cartwright upheld Mrs. Emma Willard's theory that the motive power of the blood lay in the lungs rather than in the heart. His arguments, backed by experiments on the Louisiana alligator, were described in his most argumentative style. Of his controversial talent, Dr. D. Warren Brickell, of New Orleans, says in a contemporary editorial: "Dr. Cartwright is not easily driven from the field of controversy, and if modern writers fail him, he appeals at once to those who write in Greek, Latin and Hebrew, thus overwhelming his assailants by his immense Biblical knowledge. Let no critique then attack the doctor without first counting the cost. He wields a club of Hercules and never lifts it but to fell his opponent to the earth."

Perhaps the most interesting of Dr. Cartwright's endemic remedies was his so-called sugar-house cure for bronchial, dyspeptic and consumptive complaints, propounded in 1852. Through long years, he had observed the appreciable gain in weight of all those employed in cane grinding and the local refining of sugar. Applying this observation to practical therapy he assigned patients suffering from bronchial and pulmonary complaints to spend their days on a platform built over the kettles of boiling cane in the sugar houses of South Louisiana plantations. The patients gained in weight and the cough was much improved, at least temporarily. Unfortunately the treatment received newspaper publicity in the North and Dr. Cartwright was sadly misquoted. This brought forth a series of articles justifying his therapeutic suggestion before the medical profession with testimonial letters from the patients so treated.

Dr. Cartwright was strongly opposed to the use of alcoholic beverages and published a study based on his own experience of longevity in connection with the use and abuse of alcohol. Many of his later articles deal with the diseases and constitution of the negro and diseases to be found principally in the South. An interesting communication in 1860 describes the virtues of the hot springs of Arkansas. A number of letters and reports, political in tone, deal with the South's attitude toward the negro, and bespeak the troublous times just preceding the War between the States.

Dr. Bennet Dowler and Dr. Cartwright seem to have been warm friends. One of Dr. Dowler's physiologic contributions is dedicated to "Samuel Cartwright, M. D., distinguished as a philosopher, honored as a physician, admired as a man." Referring to Dr. Cartwright in 1857, he said: "It is not the man who has practiced medicine most extensively and has obtained thereby most wealth; but he who transmits to his successors the rich stores of his experience, observation and thoughts in the art of healing, that deserves to be called philanthropist and philosopher."

His health preventing active service, shortly after the outbreak of the War between the States, Dr. Cartwright received an appointment to care for the health of the Confederate soldiers in the Natchez area, and while on duty here he contracted the disease which caused his death in 1863.

Perhaps we are inclined to honor too little the physicians of the last century. Working without laboratory facilities as we know them, without knowledge of asepsis and x-ray, without libraries other than their personal collections, small wonder that some of their conclusions were incorrect. The wonder is rather that they observed and accomplished so much under the very difficult conditions of medical practice in their day. The records of their work, which are left to us, show unusual earnestness, sincerity, ingenuity and originality. Outstanding in all these attributes was Samuel Adolphus Cartwright. Recognition for his distinguished accomplishments was given him in his own time, and no less appreciation should be accorded him in our day, as a pioneer of medicine in the deep South.

ACUTE ASEPTIC MENINGITIS*

A DISCUSSION OF THE ETIOLOGY, EPIDEMIOLOGY AND DIAGNOSIS

JOSEPH G. PASTERNACK, M. D.†
NEW ORLEANS

Meningitis is an alarming disease. The signs and symptoms are clinically more or less the same irrespective of the cause, and depend mainly on the intensity and extent of the inflammation of the meninges. If there is a meningitis present, it is important to determine the cause. This is essential from the point of view of therapy and especially the prognosis.

In 1924 Wallgren[1] called attention to a peculiar form of meningitis that he termed acute aseptic meningitis. Most of his patients were children and young persons. After mild prodromal symptoms of short duration, the patient became acutely ill, often with high fever, headache, vomiting and more or less stupor, but rarely complete unconsciousness.

Examination regularly disclosed stiffness of the neck, positive Kernig's sign, decided opisthotonus and slight or no localizing symptoms referable to the central nervous system; at most only sluggishness of the pupils, anisocoria, perhaps strabismus, rarely paresis of other cranial nerves, for example the facial. The spinal fluid was clear or occasionally turbid, under slightly increased pressure and with elevated globulin and cell count. The cells were usually lymphocytes, with some polymorphonuclears occasionally present early in the disease. The cell count was moderate and rarely around 1,000 or over. Smear and culture failed to disclose the presence of microorganisms. The course of the disease was short and the prognosis was regularly good.

In 1929 Viets and Watts[2] described three cases of Wallgren's disease at the Massachusetts General Hospital. Soon more reports began to appear in this country and in Europe, but without clues as to the etiology.

In 1934, during the transmission from monkey to monkey of infectious material derived from a fatal case of the 1933 St. Louis epidemic of encephalitis, Armstrong[3] encountered a virus that was quite distinct from the virus of St. Louis encephalitis. On the basis of the pathologic picture produced by intracerebral inoculation of monkeys and mice, he named it the virus of experimental choriomeningitis. He predicted that the virus would ultimately be found to have some significance in human medicine. He also stated, that the human disease most nearly simulated by the experimental disease in monkeys was perhaps the so-called "lymphocytic or aseptic meningitis" described by Wallgren, Viets and Watts and others.

Traub[4] later isolated a virus from a colony of apparently normal white mice, which appeared to resemble closely the virus isolated by Armstrong. The isolation of a similar virus from the spinal fluid of two human cases of Wallgren's meningitis by Rivers and Scott,[5] and the proof of the immunologic identity of the viruses isolated by Armstrong, Traub, and Rivers and Scott, has provided evidence for the etiologic agent of one group of cases of "acute aseptic meningitis" or the more descriptive and accurate designation "lymphocytic choriomeningitis."

I wish to point out now that the outstanding authorities on this disease[5, 7, 8] have presented evidence that all cases of acute aseptic meningitis are not caused by this virus and that the clinical entity described by Wallgren has more than one etiologic agent or agents.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 22, 1940.

†From the U. S. Public Health Service, Marine Hospital, New Orleans.

It is difficult or impossible to differentiate by clinical means alone, the cases of acute aseptic meningitis caused by the virus of lymphocytic choriomeningitis, from those in which no causative agent can be demonstrated; however, according to the report of Baird and Rivers,[9] the spinal fluid cell counts in the cases studied by them were higher in the former group than in the latter.

The virus of lymphocytic choriomeningitis has now been recovered in several widely separated places, in the United States, in Europe and in Japan.

The method of spread of the infection has been an important subject of investigation. Wooley, Armstrong and Onstott[6] were able to transmit occasional infection by instilling the virus into the urethra or vagina of monkeys. These observations together with the fact that they had demonstrated the virus in urine, where it tends to persist, and in the seminal vesicle fluid and testicular tissue of infected animals, suggested to them a venereal route as one of the possible explanations for the transmission of the disease in adults.

The virus is known to spread spontaneously among monkeys and mice, and it may be endemic in animals over a period of years.[10] Traub[10] has shown that naturally infected mice, capable of transmitting the disease, generally discharge large amounts of virus through the nose for a longer period of time than mature mice experimentally infected. In addition to contact infection, pregnant mice that continued to carry virus in the blood after clinical recovery, often transmitted the virus to their embryos.

Only recently Armstrong and Sweet[11] reported finding active choriomeningitis virus in three of five mice trapped in two houses in which proved human cases of the disease were present. They failed to find the infection in 21 mice trapped in eight houses and buildings in which the human disease was not present. This association of human cases and infected mice is more than a coincidence.

Coggeshall[12] reported the transmission of the disease to guinea pigs by the bite of *Aedes aegypti* mosquitoes. He stated that they can transmit the infection as early as the fourth and as late as the fifteenth day after feeding on an infected animal. The study is being extended to include other hosts and vectors.

It is interesting to note that the infection of workers constantly in contact with infected animals is rare and there are but few instances in which neutralizing antibodies were demonstrated in workers.[13]

It is more probable that the usual source of infection for man is man. In this connection it is important to mention that MacCallum and Findlay[14] recovered the virus from the nasopharyngeal washings of a patient on two occasions early in the disease.

With increasing reports of human cases of aseptic meningitis in this country and in Europe, it was but natural that epidemiologic studies should follow in an endeavor to determine the prevalence of infections with the new virus. These studies have been based largely on the detection of virus neutralizing antibodies in the serum of persons recovered from the disease.

Wooley, Armstrong and Onstott[6] tested the blood sera of 1,248 persons from various localities in the United States for protective antibodies against the virus of lymphocytic choriomeningitis. They demonstrated antibodies in 138, (11 per cent), questionable protection was obtained in 131 (10.4 per cent), while 979 (78.6 per cent) gave negative results. Fifty-three of the 1,248 sera were from clinically diagnosed cases of "aseptic meningitis." Antibodies were demonstrated in 17 of the 53 sera (32 per cent). They demonstrated antibodies in 117 sera from 997 persons without any history of central nervous system or meningeal involvement.

Wooley, Stimpert, Kessel and Armstrong[15] studied 680 blood sera from persons in various localities of the United States, Hawaii, Panama, Canal Zone, and Puerto Rico. Of the total number, 18.1 per cent definitely showed protective antibodies, and the areas represented showed widely divergent results. Thus, in the larger groups the proportion showing protection varied from 6.3 per cent in the Middle Atlantic States to 44.3 per cent in the Pacific States. However, all areas from which a reasonably large number of bloods were examined showed some virus neutralizing sera. These findings, together with those already reported, emphatically suggest that the infection is widely distributed and infects man more commonly than is generally believed.

The investigations mentioned disclosed that many individuals without histories of having had any involvement of the central nervous system possessed neutralizing antibodies in their blood against the virus of lymphocytic choriomeningitis. Thus, it appears that a person can be and not infrequently is infected with this virus without having had any illness referable to the central nervous system.

The variability in severity of proved cases of the disease in man, and the often observed presence of a "cold" or "grippe" a few days prior to the occurrence of meningeal symptoms suggests that these early signs may represent a systemic invasion in which meningeal involvement is a later and possibly exceptional occurrence. The high incidence of virus neutralizing antibodies found in persons giving a history of upper respiratory infection but no meningeal involvement supports this view. Also, this concept is compatible with the experimental disease in animals inoculated with the virus by routes other than directly into the central nervous system, and with the results of Lepine,[16] Laigret and Durant,[17] and Kreis[18] in the inoculation of human volunteers.

A significant but unexplained observation is that although the majority of cases of acute aseptic meningitis have been in children and young indviduals, the serologic evidence of asymptomatic infection in children is slight.

The epidemiology of lymphocytic choriomeningitis is still in the embryonic stage. Spontaneous epidemics of this disease are known to occur in stocks of monkeys, and colonies of mice. Small epidemics have been reported in man. The epidemic reported by Kent[19] in a large group of children unfortunately lacks the important data essential in establishing a diagnosis.

The disease appears to be most prevalent in the summer months, June, July and August; cases also occur in March, April and in September. It is definitely not a winter disease. Cases may occur in the same family or in children in the same classroom. On clinical and epidemiologic evidence, there is the danger that the disease may be considered an abortive form of poliomyelitis.

From the clinical data and the extensive experimental studies, there is no evidence that the virus of lymphocytic choriomeningitis involves any part of the nervous system except the meninges and choroid plexus. Hence signs of a meningitis are the sole clinical manifestations of its activity.

On the other hand many viruses that attack the central nervous system also produce some reaction in the meninges, but in addition there is definite injury to some particular part of the brain or spinal cord with a resultant train of symptoms and signs considered to be more or less characteristic, that is, selection of the anterior horn cells in poliomyelitis and the nuclei of the cranial nerves in encephalitis. However, it should be remembered that signs of meningitis may be the only clinical manifestation of abortive attacks of poliomyelitis, of the St. Louis type of encephalitis, or of epidemic encephalitis in its meningeal form. Moreover meningeal signs may occasionally be the outstanding feature of other virus diseases, such as herpes zoster and mumps. The disease has been frequently diagnosed tuberculous meningitis. The danger of confusng lymphocytic choriomeningitis or Wallgren's disease is so great, that extreme caution must be exercised in giving a prognosis in cases of meningitis until every means to determine the etiologic agent is used in each case.

Lymphocytic choriomeningitis in man is usually a benign, acute, transient disease. Occasionally it may be subacute or chronic, prolonged and severe, but rarely, fatal. Two fatal cases have been recorded.[20, 21] Sequelae are rare. One case of adhesive arachnoiditis[22] and one of mental deterioration[23] have been reported.

SYMPTOMS

The transient form usually has an acute onset without distinct prodromal symptoms, or with those of a "cold", the "grippe" or one of the acute infectious diseases. It begins with headache and a feeling of dizziness. Soon drawing pains appear in the muscles of the neck, the back and the legs. The headache becomes severe and the patient desires to go to bed. A mild degree of fever is present. Rarely the patient complains of chilliness. All patients complain of nausea, and in about half of the cases there is associated vomiting. The patient is frequently ill several days before the physician is called, and by then meningeal signs and symptoms are usually present. There is fever, stiffness of the neck, severe headache, and Kernig's sign is present. There may be retention of urine, stupor, delirium, convulsions, aphasia, blurred vision and transient paresis of the facial or ocular nerves. There may be a positive Babinski sign. There is frequently a pharyngitis or tonsillitis.

Examination of the cerebrospinal fluid is important. The pressure is normal or slightly increased. The fluid is usually water clear, occasionally opalescent and rarely a fine web or pellicle may form after several hours' standing, a finding traditionally associated with tuberculous meningitis. The cell count shows wide variations. The total cells may be less than 100 and all lymphocytes, or as high as 12,500 and 70 per cent polymorphs.[24] Polymorphonuclear leukocytes are frequently associated with severe illness. Their reduction in number and final disappearance is stated to be coincident with recovery. The total protein is frequently increased and may be double the normal. The colloidal gold test may be normal or show a meningitic reaction. Some authors[2, 25] stress the normal sugar and chloride content in the spinal fluid as being of diagnostic significance in differentiating between lymphocytic choriomeningitis and tuberculous meningitis. This finding however, loses its significance when there is severe vomiting and the spinal fluid chlorides and sugar may be lowered in lymphocytic choriomeningitis to the level found in early tuberculous meningitis.[26] The complement-fixation test for syphilis is negative. Micro-organisms cannot be demonstrated in smears and cultures of the spinal fluid. The blood may show only a minor leukocytosis on a count of 20,000 with an absolute lymphocytosis.

COURSE

The course of the acute transient form varies in severity and duration, but most patients recover in one or two weeks. The fever may be up to 104° F. the first day or two, but this rapidly abates and a temperature of 99° to 100° F. continues eight to 11 days and then there is a return to normal by lysis. Occasionally a low grade fever may persist for two weeks. The cells in the spinal fluid return to normal and the muscle stiffness in the neck disappears. The more severe symptoms, such as coma and convulsions, usually disappear after the first or second withdrawal of spinal fluid. In some cases stupor or coma may persist for a week and death may seem near, then suddenly the symptoms abate.

Occasionally after a few days or a week there may be a relapse, but the symptoms are usually mild and of short duration.

While the majority of cases have been of the acute transient type, a prolonged and severe form of the disease may be encountered. The literature contains but few references to this type of choriomeningitis. Cases lasting three to four weeks, six weeks, two months, four months and five months are on record.[24] Cases of this type may cause considerable concern as to diagnosis and prognosis.

THE CHRONIC FORM

The chronic form may be a continuation of the acute disease, but more often it is insidious in onset. Headache is a constant complaint. Drawing pains in the muscles of the neck and back are usually present, occasionally also in the legs. Meningeal signs and symptoms are rarely pronounced early in the course of the disease. The spinal fluid is regularly under increased pressure. It is opalescent and may show web formation after standing. The cells vary between 200 and 500 and are practically all lymphocytes. In all of the reported cases, after several weeks the fever and symptoms were augmented and became severe. The majority of chronic cases have been in adults. Recovery is the rule and there have been no serious complications or sequelae.

CONCLUSIONS

To prove that a patient has lymphocytic choriomeningitis the virus must be isolated by animal inoculation from the spinal fluid or blood; or virus neutralizing antibodies must be demonstrated in the serum of the patient against a known strain of choriomeningitis virus. There is the possibility that an occasional patient infected with the virus may not develop antibodies. In Howard's case[26] antibodies did not appear until 45 weeks after the onset of the acute infection. While virus neutralizing antibodies have been shown to persist for two or three years, they may disappear after a few months.[9]

The complement-fixation test and precipitin reaction developed by Smadel and his co-workers[27, 28] may prove to be more practical and more useful than the virus neutralization test for the diagnosis of lymphocytic choriomeningitis.

There is no specific laboratory method for the diagnosis of those cases of acute aseptic meningitis that are not caused by the virus of lymphocytic choriomeningitis. They cannot be differentiated by clinical means alone.

REFERENCES

1. Wallgren, Arvid.: Eine eigenartige Form von epidemischer Meningitis (Meningitis "aseptica" acute), Wien. Arch. f. inn. Med., 12:297, 1926.

2. Viets, Henry R., and Watts, James W.: Acute aseptic meningitis, J. Nerv. & Ment. Dis., 80:253, 1934.

3. Armstrong, Charles, and Lillie, R. D.: Experimental lymphocytic choriomeningitis of monkeys and mice produced by a virus encountered in studies of the 1933 St. Louis encephalitis epidemic, Pub. Health Rep., 49:1019, 1934.

4. Traub, Erich: An epidemic in a mouse colony due to the virus of acute lymphocytic choriomeningitis, Science, 81:298, 1935. J. Exp. Med., 63:533, 1936.

5. Rivers, Thomas M., and Scott, McNair: Meningitis in man caused by a filtrable virus, J. Exp. Med., 63:415, 1936.

6. Wooley, J. G., Armstrong, Charles, and Onstott, R. H.: The occurrence in the sera of man and monkeys of protective antibodies against the virus of lymphocytic choriomeningitis as determined by the serum-virus protection test in mice, Pub. Health Rep., 52:1105, 1937.

7. Armstrong, Charles, and Wooley, J. G.: Benign lymphocytic choriomeningitis, J. A. M. A., 109:410, 1937.

8. MacCallum, F. O., Findlay, G. M., and Scott, T. McNair: Pseudo-lymphocytic choriomeningitis, Brit. J. Exp. Path., 20:260, 1939.

9. Baird, R. D., and Rivers, T. M.: Relation of lymphocytic choriomeningitis to acute aseptic meningitis (Wallgren), Am. J. Pub. Health, 28:47, 1938.

10. Traub, Erich: Epidemiology of lymphocytic choriomeningitis in a mouse stock observed for four years, J. Exp. Med., 69:801, 1939.

11. Armstrong, Charles, and Sweet, Lewis K.: Lymphocytic choriomeningitis. Report of two cases, with recovery of the virus from gray mice (Mus musculus) trapped in the two infected households, Pub. Health Rep., 54:673, 1939.

12. Coggeshall, L. T.: The transmission of lymphocytic choriomeningitis by mosquitoes, Science, 89:515, 1939.

13. Armstrong, Charles: Personal communication.

14. MacCallum, F. O., and Findlay, G. M.: Lymphocytic choriomeningitis, Lancet, 1:1370, 1939.

15. Wooley, J. G., Stimpert, F. D., Kessel, J. F., and Armstrong, Charles: A study of human sera antibodies capable of neutralizing the virus of lymphocytic choriomeningitis, Pub. Health Rep., 54:938, 1939.

16. Lepine, P., Mollaret, P., and Kreis, B.: Réceptivité de l'homme au virus murin de la chorioméningite lymphocytaieve bénigne, Compt. rend. Acad. d. sc., 204:1846, 1937.

17. Laigret, J., and Durant, R.: Virus isolé des souris et retrouvé chez l'homme au cours de la vaccination contre la fiévre jaune, Compt. rend. Acad. d. sc., 203:282, 1936.

18. Kreis, Boris: La maladie d'Armstrong, choriomeningite lymphocytaire, J. B. Bailliere et fils, Paris, 1937.

19. Kent, Alfred A.: An epidemic of benign lymphocytic meningitis, South. Med. & Surg., 101:374, 1939.

20. Viets, H. R., and Warren, Shields: Acute lymphocytic meningitis, J. A. M. A., 108:357, 1937.

21. Machella, T. E., Weinberger, L. M., and Lippincott, S. W.: Lymphocytic choriomeningitis. Report of a fatal case with autopsy findings, Am. J. M. Sc., 197:617, 1939.

22. Barker, L. F., and Ford, F. R.: Chronic arachmoiditis obliterating spinal subarachnoid space, J A. M. A., 109:785, 1937.

23. Andersen, A. K., and Wulff, F.: Meningitis acuta serosa idiopathica benigna, Acta path. et microbiol. Scandinav, (supp. 3) 21, 1930.

24. Vogt, H.: Chronische Verlaufsform der benignen lymphocytären Meningitis, Deutsches Arch. f. klin. Med., 183:501, 1939.

25. Armstrong, C., and Dickens, P. F.: Benign lymphocytic choriomeningitis (acute aseptic meningitis), Pub. Health Rep., 50:831, 1935.

26. Howard, Marion E.: Lymphocytic choriomeningitis, J. Infect. Dis., 64:66, 1939.

27. Smadel, J. E., Baird, R. D., and Wall, M. J.: Complement-fixation in infections with the virus of lymphocytic choriomeningitis, Proc. Soc. Exper. Biol. & Med., 40:71, 1939.

28. Smadel, J. E., Wall, M. J., and Baird, R. D.: A soluble antigen of lymphocytic choriomeningitis, J. Exp. Med., 71:43, 1940.

DISCUSSION

Dr. Hugh P. Newbill (New Orleans): Dr. Pasternack's review has been so comprehensive that little is left for me to say. My personal contact with the disease under discussion has been insufficient to draw any significant conclusions.

Four years ago at the University of Virginia Hospital I did observe several patients whose condition was felt to be acute aseptic meningitis; the diagnoses, however, were only reached by a process of elimination. Shortly after they were discharged from the hospital, we learned that a peculiar form of so-called "grippe" was epidemic in the community. A number of patients had complained of severe headache, mild to moderate stiff neck and generalized aching. These symptoms were of short duration and many were not sufficiently sick to have medical attendance. In several instances more than one member of a family was sick. One layman, in social conversation, told me that "nearly everyone I know has had it." The fact that stiffness of the neck was so persistently present made us feel that we actually were dealing with an epidemic of acute aseptic meningitis, only a few cases having been sufficiently severe to warrant hospitalization. Whether or not this was an actual fact, I, of course, cannot say. However, we may safely assume that similar mild or even subclinical cases must occur to account for the relatively widespread degree of immunity to the disease.

In the same community, we saw an unusual number of neurologic patients whose lesions we felt were due to viruses. I would like to ask Dr. Pasternack if there is any evidence indicating that this disease is more common in regions where other virus infections are endemic or epidemic.

Dr. Pasternack: This observation has not been made.

SULFAPYRIDINE THERAPY IN PNEUMOCOCCIC MENINGITIS COMPLICATED BY PULMONARY TUBERCULOSIS WITH RECOVERY

CASE REPORT

SUZANNE SCHAEFER, M.D.[†]
NEW ORLEANS

Hewell and Mitchell,[1] who reviewed the literature of pneumococcic meningitis through 1938, reported that between 1927, when Goldstein and Goldstein collected 150 recoveries, and 1937, thirty authentic recoveries from the disease were recorded in the literature. Between 1937 and the date of writing, they themselves were able to collect 27 recoveries from pneumococcic meningitis in which the administration of sulfanilamide or its derivatives had formed part of the therapy. To this number, they added three personal recoveries and had seen an additional recovery before the paper was published.

From 1926 to 1937, according to these authors, 23 cases of pneumococcic meningitis had been attended with a 100 per cent mortality at the Children's Hospital of Cincinnati and on the children's services of the Cincinnati General Hospital. The introduction of sulfanilamide had reduced the mortality in six cases observed after 1937 to 50 per cent. Data available from personal observation and the literature did not permit any conclusions as to whether better results were secured with sulfanilamide, prontosil, or sulfapyridine. It could not be shown that the age of the patient, the type of pneumococcus, or the dosage bore any constant relation to recovery.

The case herewith reported is put on record for two reasons: First, that it furnishes another instance of recovery from pneumococcic meningitis as the result of sulfapyridine therapy; and second, that the acute meningitic state was complicated by active pulmonary tuberculosis and by a tuberculous infection of the knee joint.

CASE REPORT

F. I., a white girl aged 10 years and 10 months, was first seen December 27, 1939. For the past two years, she had had a painless unilateral (right) synovitis of the knee, with intermittent exacerbations. In the course of the last attack, she had been seen by an orthopedist, who referred her to me for a general examination before instituting any therapy.

The past history was negative except for the synovitis mentioned and recurrent attacks of otitis media, none of which had needed surgical therapy. The child was of normal size and weight for her age, and looked healthy. The only positive physical finding was an enlargement of the right knee, with evidence of fluid in the joint.

Blood study and urinalysis revealed nothing abnormal. A tuberculin test was strongly positive, and roentgenologic examination of the chest was reported as follows:

[†] From Touro Infirmary of New Orleans and the School of Medicine of Louisiana State University.

Stereoscopic films of the chest show . . . "the right hilus shadow to be somewhat prominent. There is an infiltrative process in the left apex made up of strand-like shadows and a few clearly demarcated interspersed tubercles. The lower portion of the left lung appears to be normal. There is some increase in the markings in the extreme right apex and it is believed that there is a tuberculous infiltration in this area also, though to a lesser degree than on the opposite side. The lower portion of the right lung is clear, and both diaphragms are smooth and well rounded. Serial studies will be necessary to determine the activity of the tuberculous process, which is of the adult type."

Since the child had no temperature elevations, night sweats, loss of weight, or other signs of tuberculous activity, a regimen of only partial rest was instituted. A cast was applied to the right leg, extending from the thigh to the toes, after fluid had been aspirated from the joint. The fluid was proved by guinea pig inoculation to contain tubercle bacilli.

Clinically the child remained perfectly well except for occasional recurrences of the old otitis media. At the end of six weeks, a second roentgenogram of the chest was reported as follows: "Re-examination of the chest (February 13, 1940) with stereoscopic films again shows the tuberculous infiltration in both apices. At this time, there is seen a rounded, discrete nodule of soft tissue density, measuring approximately 1.1 cm. in diameter and lying in the left upper lung field at the level of the first interspace anteriorly and the fourth posteriorly. This lesion was not present on the previous film and the findings suggest a large conglomerate tubercle. No other evidence of extension of the disease is noted. The diaphragms are smooth and well rounded and the costophrenic angles are clear."

The child was immediately put upon a regimen of complete bed rest. She continued well except for recurrent attacks of acute purulent otitis media, for which otolaryngologic consultation was sought. The temperature during these attacks at no time exceeded 99.8°F. A culture of the discharge revealed mixed staphylococci, streptococci, and pneumococci. Neoprontosil therapy was instituted, but was without apparent effects.

February 27, 1940, the child awakened complaining of severe pain in the left ear. The drum was bulging and reddened on the first examination, and a few hours later the process had so advanced that myringotomy was necessary and neoprontosil was resumed. A profuse, purulent discharge was present.

The following day, February 28, there was a complaint of nausea and malaise. By afternoon, the child began to vomit, and the temperature was 103°F. Sulfanilamide was substituted for the neoprontosil, but the vomiting continued. At midnight, a severe generalized headache was relieved by codeine gr. ¼ and aspirin gr. 5.

The following morning, February 29, the temperature was only 101°F., but the vomiting was almost continuous. All medication by mouth was stopped and hospitalization was advised.

Roentgenologic examination of the mastoid and sinus areas immediately after the child's admission to Touro Infirmary revealed the left mastoid area to be cloudy, although no breakdown of the intercellular trabeculae could be definitely demonstrated. Blood study showed 5,200,000 red cells and 14,500 white cells per cu. mm., with 85 per cent polymorphonuclear cells.

Neoprontosil (10 c. c. of 5 per cent solution) was given intramuscularly and 1,500 c. c. of 5 per cent glucose in normal saline solution was given by vein. By 10 p. m., the temperature, which had been steadily rising since morning, was 105° F., and rigidity of the neck was apparent. Spinal tap disclosed cloudy fluid under considerable pressure (300 mm. water). The cell count was reported as 5,050 and the globulin as 3 plus. A stained smear revealed gram-positive diplococci, which were found to be pneumococci, type XIX.

Left mastoidectomy was immediately performed under ethylene anesthesia by the otolaryngologist. As soon as the mastoid cortex was opened, pus oozed out under pressure and there was evidence of a breaking down of the mastoid cells. As the operation progressed, it was observed that an unusual amount of pus under pressure oozed from a point just above the knee of the lateral sinus. Further investigation disclosed a large extradural abscess containing a large quantity of pus. It was necessary to remove considerable bone covering the lateral sinus in order to expose and adequately drain the abscess cavity. The mastoid was well pneumatized and the cells were exenterated as completely as possible. An iodoform gauze pack was placed in the mastoid cavity and another was inserted into the extradural abscess cavity. The mastoid wound was left wide open. The child's condition at the conclusion of the operation was as good as could be expected.

The pus obtained from the mastoid proved to contain type XIX pneumococci, and a blood culture made at the time of operation was reported to contain the same organisms.

Immediately after operation, an infusion of 1,000 c. c. of 5 per cent glucose in normal saline solution was given, following the intravenous injection of 1.9 gm. of sodium sulfapyridine. During the next six hours, following tests for sensitivity, a total of 100,000 units of type specific (pneumococci XIX) rabbit serum was given, also by vein. After the final injection, a chill occurred, which lasted about 20 minutes and was accompanied by cyanosis and a rise in temperature to 104.4°F. The temperature promptly fell to 99.2°F., slightly lower than it had been six hours after operation (fig. 1).

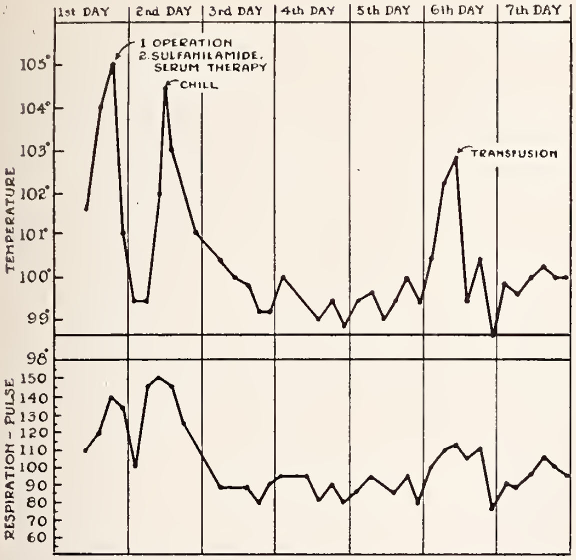


Fig 1. Temperature and pulse for the first six days of the acute illness. Thereafter, the temperature remained normal or approximately normal.

The initial intravenous dose of sodium sulfapyridine was repeated at the end of six hours and again at the end of another six hours. Four hours later (16 hours after operation) 1 gm. was given by mouth, with 20 gm. of nicotinic acid, and this medication was repeated every four hours, thereafter until 22 gm. had been given, on the sixth day after operation.

Daily blood studies were made from March 1, through March 5. The first revealed 4,980,000 red cells and 21,250 white cells per cu. mm., with 85 per cent polymorphonuclear cells; the second 4,990,000 red cells and 11,050 white cells per cu. mm., with 75 per cent polymorphonuclear cells; and the third 4,780,000 red cells and 6,650 white cells per cu. mm., with 70 per cent polymorphonuclear cells. At this time, March 3, a transfusion of 250 c. c. of citrated blood was given. March 4, the red blood cell count was 5,050,000 and the white cell count 7,800 per cu. mm., with 90 per cent polymorphonuclear cells. Another transfusion of 250 c. c. citrated blood was given March 5, when the red cell count was 4,750,000 and the white cell count 9,200 per cu. mm., with 70 per cent polymorphonuclear cells. All blood studies thereafter were within normal range.

The spinal puncture performed March 2 revealed fluid under pressure (400 mm. water). The cell count was 2,060 (95 per cent neutrophiles), the globulin 2 plus, and the colloidal gold 0011100000. Pneumococci type XIX were again present on culture. The following day, the fluid was under normal pressure, the cell count was 600, and there was only a trace of globulin. Pneumococci (type XIX) were again present on culture. March 6, no organisms were present and all other examinations of the spinal fluid were within normal range.

After the first 24 hours postoperative, the child's recovery was gratifyingly smooth in every respect. Roentgenologic examination of the chest March 18 showed no change, one way or the other, in the tuberculous lesion. She is still on a regimen of complete rest, but is entirely recovered from her acute illness. The cast was removed from the right knee after the mastoid operation, to add to her comfort, and the joint condition is apparently progressing favorably at the present time.

COMMENT

A partial survey of the literature since Hewell and Mitchell's publication has revealed fourteen additional recoveries following sulfapyridine or sulfanilamide therapy in pneumococcic meningitis.[2-11]

An interesting feature in the case reported herewith is that the blood culture taken at operation was positive for type XIX pneumococci. Hewell and Mitchell call attention to the fact that, although the data on this point are incomplete, recovery ensued in only one of the eight patients with positive blood cultures following sulfanilamide therapy. Evidently, as these authors point out, blood stream infection is an important factor in the mortality rate in this disease.

Unquestionably the tuberculous infection in this case added to the child's risk and might have been expected to be aggravated, itself, by the superimposed disease. This does not seem to have happened, nor does the sulfapyridine therapy seem to have exerted any effect, one way or the other, upon the tuberculous lesion.

Feldman and Hinshaw[12] found that sulfapyridine exerted an inhibitory effect on experimental tuberculosis in guinea pigs. Follis[13] demonstrated that sulfanilamide and acetylsulfanilamide, even in high concentrations, were practically without effect on the tubercle bacilli *in vitro*, although sulfapyridine in concentrations of 50 mg. or higher had some inhibitory effect. He considered that the differences between his results and those of Ballon and Guernon,[14] who found sulfanilamide effective *in vitro*, were to be explained by differences in the media used. Nayer and Steinbach[15] administered sulfanilamide to eight patients with extensive pulmonary tuberculosis, for periods varying from 10 to 71 days, without any effect whatsoever. This is in line with my own observations in the case reported, and it seems reasonable to say, in view of the confusion of experimental facts, that at the present time sulfapyridine exerts no beneficial effect in pulmonary tuberculosis.

SUMMARY

1. A case is reported of pneumococcic meningitis complicated by pulmonary tuberculosis and tuberculosis of the knee joint.
2. Recovery from the meningitis promptly ensued following sulfapyridine, type specific rabbit serum, and surgical therapy.
3. The sulfapyridine therapy exerted no effect, one way or the other, on the tuberculous disease.

REFERENCES

1. Hewell, B. and Mitchell, A. G.: The treatment of pneumococcic meningitis with sulfanilamide, J. A. M. A., 112:1033, 1939.

2. Toomey, J. A. and Roach, F. E.: Pneumococcus meningitis, Ohio State M. J., 35:841, 1939.

3. Haley, P. A., Jr.: Pneumococcus meningitis—sulfapyridine therapy. Recovery. (Case report), West Virginia M. J., 35:428, 1939.

4. McAlpine, D. and Thomas, G. C.: Pneumococcal meningitis treated with M & B 693, Lancet, 1:754, 1939.

5. MacKeith, R. C. and Oppenheimer, G.: Pneumococcal meningitis, Lancet, 1:1099, 1939.

6. Raman, P. S.: Pneumococcal meningitis treated with M & B 693, Lancet, 1:1101, 1939.

7. Cutts, M., Gregory, K. K. and West, E. J.: Pneumococcic meningitis successfully treated with sulfapyridine, J. A. M. A., 112:1456, 1939.

8. Sherman, DeW. H.: Pneumococcus meningitis—recovery from specific treatment, Arch. Pediat., 57:112, 1940.

9. Patton, P. B., Tittle, C. R. and Wynne, H. K.: Pneumococcus meningitis with recovery, Internat. Clin., 3:255, 1939.

10. Long, P. H.: Sulfapyridine, J. A. M. A., 112:538, 1939.

11. Moore, M. L. and Forbes, R. P.: Pneumococcal meningitis, J. Pediat., 16:347, 1940.

12. Feldman, W. H. and Hinshaw, H. C.: Effect of sulfapyridine on experimental tuberculosis in guinea-pig, Proc. Staff. Meet. Mayo Clin., 14:174, 1939.

13. Follis, R. H.: Sulfanilamide, acetysulfanilamide and sulfapyridine, Am. Rev. Tuberc., 41:117, 1940.

14. Ballon, H. C. and Guernon, A.: Action of sulfanilamide upon growth of tubercle bacillus in vitro, J. Thoracic Surg., 8:184, 1938.

15. Nayer, H. R. and Steinbach, M. M.: Sulfanilamide in clinical tuberculosis, Am. Rev. Tuberc., 40:470, 1939.

ACUTE APPENDICITIS IN THE FEMALE*

LUCIEN A. LEDOUX, M. D.
New Orleans

Because of the continued high mortality from the disease, the subject of acute appendicitis must at all times be considered a very important one. Furthermore, as the surgeon's responsibility is increased and the problem which confronts him is multiplied when he is called upon to make a differential diagnosis in an acute lower abdomen in the female, it is well to review, from time to time, those factors which most frequently complicate the diagnosis of acute appendicitis in the female.

The disease develops more frequently in the female than in the male. The morbidity is not influenced by sex but abdominal pain of varying types and degrees is more or less a frequent complaint in women at some time or other. The pathology of appendicitis in the female is the same as in the male, excepting in such instances where the appendix becomes involved secondarily to an adnexal inflammation. Here the picture is usually one of a peri-appendicitis, in itself not a grace situation; as a matter of fact the condition is usually first discovered during the course of routine pelvic surgery.

Disturbances in the urinary tract and in the pelvic organs frequently give rise to symptoms which simulate acute appendicitis and it is only by a comprehensive history, careful abdominal and pelvic examination and corroborative laboratory evidence that a differential diagnosis can be made.

The history must not only include the menstrual history but should go further and include a complete gynecologic history. This is of the utmost importance as the history alone frequently points to the diagnosis, a fact too often overlooked or passed over too lightly.

The causes of acute lower abdominal pain in the female are quite numerous but I shall only review those which occur most frequently, at least in my own experience.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

ACUTE CYSTITIS

The onset of this disease is frequently sudden and accompanied by severe pain in the lower abdomen. The pain is described as being of the pressure type or bearing down in character and it is localized over the region of the bladder, though at times it appears to center in an area corresponding to the right side of the bladder.

The classical symptoms of frequency or burning on urination are often absent in the early stages of this disease as are the positive findings of pus in the urine. These only appear after the organ involved has had time to react to the infection; hence the examination of two or three catheterized specimens is a proper procedure. It is well to remember that nausea and backache are frequent associated symptoms.

Intravaginal pressure upon the urethra will often elicit pain, frequently a helpful point in diagnosis. The blood picture is typical, a slight total leukocyte increase and a more marked neutrophilic percentage. As many cases of cystitis develop following an acute intestinal disturbance, the possibility of a coexisting pelvic appendicitis must not be discounted. I recall very vividly such a case, having been called to see a young woman complaining of nausea, vomiting and moderate generalized abdominal pain with the point of major tenderness in the region of the bladder. Within 24 hours, the urinary findings were positive and with symptomatic and urinary therapy, her general condition improved to a point where the morning of the third day, her temperature was normal and she was symptom free. That night she developed a high temperature with acute pain localized this time in the lower right quadrant. This second abdominal crisis, diagnosed as an acute appendicitis, was confirmed at the time of operation. An acute suppurative pelvic appendix was found adherent to the right margin of the bladder surface.

ACUTE SALPINGITIS

The pain which characterizes the onset of this disease is usually of an acute nature. There is generalized discomfort over the entire lower abdomen with high temperature and nausea and vomiting. Localization of the pain is usually not difficult as it invariably is found to center immediately above Poupart's ligament in the region of the adnexa.

Whether or not a palpable mass is felt, vaginal examination always reveals a marked tenderness and immobility of the uterus due to inflammatory fixation and any attempt at raising the uterus invariably causes severe pain in the adnexal region. The temperature of the vagina is increased and the leukocytosis very pronounced.

Reference has already been made to the possible coexistence of acute salpingitis and appendicitis. If exploratory measures are taken in such cases, no harm can result from the procedure, providing the surgeon limits himself to the removal of the appendix and leaves the acute pelvic condition alone.

ACUTE INTESTINAL TOXEMIA

The predisposition of the female to constipation, particularly just prior to the onset of the menstrual period is well known. A situation frequently develops at this time, which results from active putrefactive changes in the large intestines, often of sufficient degree as to produce symptoms which simulate acute appendicitis; as a matter of fact it may be the forerunner of this disease in many instances.

The usual picture is a familiar one, namely, sudden onset with slight elevation of temperature, nausea or vomiting or both and generalized abdominal pain. The tendency is to frequent stools, usually highly colored and of a very offensive odor. There is little if any change in the blood picture. If the diagnosis is correct, the patient's condition shows marked improvement within a few hours. Nature has helped in a positive way by producing vomiting and diarrhea, and gastrointestinal rest, through the withholding of everything by mouth, serves to promote a rapid recovery.

OVARIAN DISTURBANCES

Among those to be considered in the making of a differential diagnosis are: Rupture of the graafian follicle, rupture of a corpus hemorrhagicum and what can be designated as an ovarian crisis, this the result of excessive anterior pituitary like hormone therapy.

It is not uncommon for women to complain of acute abdominal pain at the time of graafian follicle rupture. This is the well known "mittelschmerz", which is frequently observed midway between the menstrual periods. Nausea is a frequent accompaniment and in some instances the pain persists for several hours. A slight bloody discharge occasionally appears. The patient also complains of pain and tenderness. The pain is localized in the ovarian region and intensified by palpation. There are no changes in the blood picture, and usually within eight to ten hours the patient is normal again.

Rupture of a corpus hemorrhagicum is not a frequent occurrence but must be included in any consideration of the status of an ovary. This condition occurs with greater frequency in young women with a tendency towards cystic changes in the ovaries. The history is important, as menstruation is seldom if ever normally established. Marked irregularity of interval, at times of several months, is complained of. Failure of the cyclic maturation of the follicle results in hemorrhage and degeneration with eventual rupture when this occurs, the localized pain in the adnexal region may be severe and is accompanied by nausea and a degree of shock. There is usually a slight leukocytosis and temperature, and low backache is a usual symptom.

What I have referred to as an "acute ovarian crisis" is the acute pain in the ovary which has been observed following the excessive administration of anterior pituitary like hormone. The rate of stimulation of this organ is out of proportion to the ability of the capsule to enlarge and, as a result of the intra-ovarian pressure, acute pain may develop. The history, the localization of the pain in the ovary and the absence of temperature are all differential points.

RUPTURED TUBAL PREGNANCY

The symptoms and signs of this clinical entity are well known but may be overlooked. Again the history is of the greatest importance, as the patient may or may not have missed a menstrual period. There may have been intermittent spotting before the rupture developed. The onset is sudden, usually following effort of some kind, with acute abdominal pain which soon becomes generalized, nausea and a variable amount of shock. A bloody vaginal discharge frequently appears; rectal tenesmus may be complained of. The temperature is elevated as is the total leukocyte count.

Pelvic examinations reveal an enlarged pregnant uterus with evidence of an adnexal mass and a bogginess in the cul-de-sac. A feeling of crepitation is elicited in some cases. The progressive and rapid aggravation of all symptoms and signs suggest an acute abdominal emergency of this type.

ACUTE MESENTERIC LYMPHADENITIS

This differential diagnosis is very difficult to make as the clinical picture simulates acute appendicitis more than any other condition. Except that the pain tends to localize itself more about the umbilicus, there is practically nothing else to differentiate it. The pain may be just as acute as in appendicitis and all of the classical symptoms and signs may be present. The existence of this condition can only be determined by careful and ample exploration. In all probability, acute mesenteric lymphadenitis is the explanation for the apparently harmless looking appendix which is frequently removed.

SURGICAL PROCEDURE

In regard to the surgical approach, I have always been of the opinion that this is important. My preference has been to use the right rectus incision or the low midline incision and I have never had any reason to regret it. Either of these incisions permit of the satisfactory removal of the appendix, besides they lend themselves admirably to the purpose of exploring the pelvis and performing such additional surgery as may be required. The only possible objections to the use of either of these incisions, namely, the danger of postoperative hernia and the risk of an ugly abdominal scar can be eliminated by any competent surgeon, as present day management of wounds insures the securing of good anatomic as well as cosmetic results.

Nothing is more disconcerting to the surgeon than to have a patient return several months later following an appendectomy with the same complaint of pain in the right side. This frequently means that the diagnosis has been missed, and the observation has been made that this has occurred in the majority of cases in patients showing a McBurney incision. Such patients usually secure a new medical advisor; therefore, good judgment and experience suggest that the type of incision employed should be dictated by the surgeon and not by the whim of the patient.

The surgeon, while weighing all the facts, should keep constantly before him the knowledge that acute appendicitis is strictly a surgical problem and is one which calls for early and immediate operation once the diagnosis has been established; where a reasonable doubt exists, he is fully justified in dong an exploratory operation.

As a differential diagnosis is not always easy to make, it appears that these borderline cases would in many instances be benefited by consultation before the decision to operate is reached.

SUMMARY

1. In the female, appendicitis occurs with slightly greater frequency than in the male. The mortality is not influenced by sex.

2. The diagnosis is more frequently difficult to make.

3. The more common causes which require differentiation are discussed.

4. The low midline incision is suggested as more suitable.

5. More consultations in borderline cases are recommended.

DISCUSSION

Dr. John F. Dicks (New Orleans): A discussion of the differential diagnosis of appendicitis must depend upon the anatomic structure of the male and the female. We might divide this discussion into inflammatory and non-inflammatory conditions. Under inflammatory conditions, we may classify acute and chronic salpingitis, ovarian abscess, and pelvic cellulitis. Under the non-inflammatory there are ovarian cysts, fibroids, extra-uterine pregnancy, twisted ovarian pedicles, and pelvic tuberculosis.

Under symptomatology there is very little difference between the male and the female. Appendicitis is often ushered in with pain in the upper abdomen, later localized in the right iliac fossa. In gynecologic conditions the onset is often not as acute, and the pain is localized in either lower iliac fossa. Menstrual disturbances are something we should pay a great deal of attention to. A careful menstrual history should be obtained because it often gives a clue as to the differentiation from appendicitis. Vaginal smears should be taken.

Repeated vaginal examinations are of importance. Sometimes when we make one vaginal examination and at a later date make another we get an entirely different idea than at the first examination. Examinations under anesthesia are also of great importance in differentiating a gynecologic condition from appendicitis. I had a case recently which illustrated that fact very forcibly. The patient gave a history of being pregnant. She was examined in the office, and I found what I thought was a mass on the right side and, I thought she possibly had an extra-uterine pregnancy. The patient was sent to the hospital and under a general anesthetic she was examined again. I then had a different impression from the one I had gained in the office. This is mentioned to show that repeated vaginal examinations, and examinations under anesthesia are often necessary to make an accurate diagnosis.

As to the incision, if you are in doubt about the diagnosis, do as Dr. LeDoux said and make a midline instead of a right rectus or McBurney. It is much simpler to remove a bad appendix through a midline incision than it is to do a hysterectomy or handle a bad pelvic infection through a right rectus or a McBurney.

Dr. Lucien A. LeDoux (In conclusion): I do not have anything else to add. I feel that the points I wanted to make have been presented. No attempt was made to review all of the possible conditions that might simulate or make the matter of diagnosis of appendicitis in the female more difficult. I simply reviewed the problems which I have met and which I am sure we all have to meet at some time or another.

EARLY DIAGNOSIS AND TREATMENT OF AMEBIC ABSCESS OF THE LIVER[*]

DANIEL N. SILVERMAN, M. D.[†]
ROY J. ST. MARTIN, M. D.[†]
NEW ORLEANS

The fact that amebic abscess of the liver still goes unrecognized in certain observed cases, the fact that the victims of this disease may suffer long periods of disability as the result of delayed diagnosis, we wish to recount some of the cases that have come to our attention. In this wise, we wish to point out some of the protean manifestations of the amebic hepatic abscess and to call attention to the necessity for an early suspicion of this disease in individuals who have many weeks, and even months, of chronic abdominal complaints, particularly upper abdominal pain with a low-grade intermittent fever and leukocytosis. An early diagnosis will be rewarded by rapid return to good health by simple medical measures. Too often, the clinician has depended upon a previous history of a concurrent amebic colitis to make him suspicious of an amebic abscess of the liver. While some abscesses have occurred during the course of an amebic dysentery, many amebic abscesses of the liver occur, not alone, but without the history or clinical findings of an amebic colitis, as well as in a total absence of amebic hemolytica in the stool.

In a review of a series of cases of amebic abscesses of the liver from the records of the Touro Infirmary from 1933 to 1940, the following is interesting to note:

Number of abscesses of the liver	18
Number of amebic abscesses of the liver	8
Number of cases of amebic abscesses of liver (operated)	5
Number of cases of amebic abscesses of liver (not operated)	3
Number treated with emetine (operated or not operated)	6
Number treated with emetine (operated)	2
Number with negative stool	5
Number with positive stool	1
Material from liver abscess—positive	1
Positive at operation and autopsy	1

AMEBIC ABSCESS OF LIVER DEVELOPING SIMULTANEOUSLY WITH AMEBIC DYSENTERY

CASE NO. 1

This patient, a man of 51 years of age, gave a history of having had diarrhea, 10 to 20 stools daily with mucus and blood, abdominal cramps, tenesmus, fever and sweats, soreness in right upper quadrant of three weeks' duration. Physical examination revealed an elevation of the right diaphragm, abdominal tenderness most marked in lower, left quadrant and right upper quadrant. There was a mass 7 x 7 cm., semi-lunar in shape, below the left costal margin. X-ray examination showed marked elevation of the right diaphragm, fixation, and basal pneumonitis. The total white blood count was 32,000 with 90 per cent polys; stool, amebae plus; agglutinations negative. The emetine treatment was instituted with the result that x-ray check-up showed the disappearance of pneumonitis, but the diaphragm was still elevated. Fluoroscopic examination showed an L-shaped stomach. The stool examination was negative. On his discharge from the hospital, the mass in the left hypochondriac region was gradually diminishing in size.

COMMENT

This case illustrates the ever present possibility of having an amebic hepatitis or amebic abscess of the liver, complicating amebic dysentery. The value of detecting liver complications is appreciated when one considers the difference in line of treatment between uncomplicated amebic dysentery and amebic dysentery associated with abscess formation outside of the intestinal tract. While it is well recognized that amebic dysentery is controlled and cured wtih oral preparations only, such as oxyquinol as used today, these oral preparations will not suffice to relieve the pathology in the liver which is definitely aided and often entirely relieved by the employment of emetine. However, one should use very little, if any, emetine which is a cardiac and neuro-toxic drug, unless there is an abscess.

AMEBIC ABSCESS OF LIVER RECURRING IMMEDIATELY AFTER TREATMENT FOR AMEBIC DYSENTERY

CASE NO. 2

This patient was a man 42 years old, who complained of having frequent bloody stools and severe abdominal cramps. This condition started about two months previously. He was given ipecac. He was found to be very much undernourished. The physical examination revealed an asthmatic bronchitis which the patient believed was of twenty years' duration.

---

[*] Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

[†] From the Department of Gastro-enterology, Louisiana State University, School of Medicine, New Orleans.

Proctoscopic examination presented a few small ulcers in the sigmoid. The stools contained numerous flagellates of the chilomastix and trichomonas species and *Endameba histolytica.*

The patient was placed at absolute rest on a soft diet. He was then given a course of stovarsol (daily) until he had taken 25 tablets. Twenty days later he reported slight "weakness in the legs." The bowels had become constipated. The stools were found to be free of any parasites or cysts. Stovarsol was then discontinued. Two weeks later, while out at sea, dysenteric symptoms came on rather acutely, followed by pain in right upper abdomen and slight rise in temperature. A diagnosis of liver abscess was made. The total leukocyte count was 22,000 with 89 per cent neutrophils. He was then put on emetine for 12 days; also given bismuth subnitrate for the same period of time. Upon immediate return to New Orleans, the physical examination showed an enlarged liver, palpable 2½ inches below costal line, with a tender mass in the lower border of the right lobe. He was readmitted to the Touro Infirmary, with temperature 99° F., total white blood count 10,000 neutrophils 76 per cent.

Treatment was then directed towards possible surgical interference, in the way of hypodermic injections of emetine hydrochlorid, supplemented with quinine sulphate and strychnine sulphate. There was a gradual, but definite reduction in the size of the abscess.

AMEBIC ABSCESS OF LIVER WITHOUT AMEBIC DYSENTERY AND WITHOUT AMEBA BEING FOUND IN THE STOOL

CASE NO. 3

This patient was admitted to the Touro Infirmary with a complaint of severe pain in left upper quadrant, left shoulder and left chest, worse on inspiration (fever 99 3/5°, and leukocytosis 12,500 with 81 per cent polys). She had been suffering with the same type of pain for about three months. There was also a history of mucus in stools. She was treated for mucous colitis with no qualitative or quantitative dyspepsia. There was no nausea or vomiting. Physical examination was essentially negative, except for tenderness over the eleventh and twelfth ribs, anterior and posterior, left; generalized abdominal rigidity, marked tenderness in epigastrium and left upper quadrant. Chest; diminished percussion, left base.

Patient continued to run septic temperature of 102° F. All laboratory tests, including blood culture, agglutinations, urine culture, and stool examinations, were negative. There was leukocytosis of 12-27,000 with 81-90 per cent polys.

Emetine treatment was given this patient and a fluoroscopic examination showed some deformity of the duodenal cap. There was slight elevation of the left diaphragm with some limitation of motion particularly anteriorly. The costo-phrenic angle is now clear and basal pneumonitis entirely cleared.

COMMENT

Amebic abscess of liver may occur concurrently with other abdominal pathology. In this instance, a definite irregularity of the duodenal cap persisted in each examination. However, the abdominal mass was not a peri-duodenal infiltration due to a chronic perforated duodenal ulcer, but rather to a hepatic involvement. The abdominal mass as well as fever and leukocytosis disappeared completely following the use of emetine. This case illustrates another common finding, namely, secondary and inflammatory involvement of the lungs, shown on the radiograph as a pneumonitis.

AMEBIC ABSCESS OF LIVER WITHOUT HISTORY OF DYSENTERY AND WITH NEGATIVE STOOL EVIDENCE

CASE NO. 4

This patient had a cholecystectomy performed. The liver was found enlarged downward, gallbladder atrophic. He made an uneventful recovery in the next 19 days. He then began to run a low-grade fever, with loss of weight and developed an anemia. There was pain in the right lower chest. The stool was negative, but leukocytosis was noted. Physical examination revealed the following findings: anemic appearance, elevation of diaphragm on the right side posteriorly, and the liver palpable three fingers below right costal border.

Treatment: Blood transfusion 500 c. c.; exploratory aspiration in the ninth interspace, posterior axillary line, was productive of brownish fluid. A day later, a resection of the ninth rib (portion) was performed. The diaphragm was sutured to the liver. Patient expired and the final diagnosis was recorded as: Amebic abscess of liver; general peritonitis; acute dilatation of the heart.

COMMENT

The above case demonstrates the fact that toxic symptoms, fever, and leukocytosis may exist for a long period of time and gallbladder infection be suspected, when the true pathology is a slowly developing abscess of the liver caused by amebae. It is found that cholecystectomy in such cases is not a rare procedure and the error of diagnosis can be justified by the diffuse inflammation of the biliary tract, including the gallbladder, in individuals who have an amebic hepatitis or abscess. When such procedures have been performed and the above described symptoms persist, it is certainly advisable to treat the patient with anti-amebic therapy, in spite of the absence of characteristics of liver findings. As demonstrated in this particular case, the enlargement of the liver and the elevation of the dome of the diaphragm could be found to be demonstrated only in the final stage of the disease, when secondary infection had already taken place and it was well known that it is this secondary infection which has shown the fatal issue which complicates the original abscess caused by amebae.

The onset of an amebic abscess of the liver does not occur spontaneously, but develops insidiously, and then there is a gradual rise in temperature with leukocytosis and increasing toxemia. Certainly, in the beginning, an amebic abscess of the liver is not associated with the typical clinical and x-ray signs, especially the elevation of the dome of the diaphragm as found in the mature well developed abscess.

TREATMENT

With the early diagnosis having been established, that is, diagnosis before massive pathology and secondary infection, which is much more serious, the treatment should be conservative and directed towards medical measures outlined in the above case description. It behooves one to administer emetine, but to administer these neuro-toxins very cautiously. In certain susceptible individuals, cardiac irregularities, and even failures, have been observed with small doses of emetine. Under these conditions of administration, it has been found that 1 grain of emetine intramuscularly, per diem, will suffice to bring about a gradual subsidence of the symptoms. Then, commensurate with the subsidence of the symptoms, namely, the fever, toxemia and leukocytosis, diminishing amounts of emetine should be administered.

SUMMARY AND CONCLUSION

The above series of cases of amebic abscess of the liver, which includes a certain hospital group seen over a period of seven years as well as a small series of private patients, serves to demonstrate certain salient points in connection with the disease in question. Once recognized, the chances for recovery in amebic abscesses of the liver are very good, regardless of the type of treatment. There was one death out of the hospital group and one death out of the private series, the latter not having been recognized until secondary infection had produced a toxic degeneration of the cardiac muscle. Under some conditions, such as the massive and medically irreparable degeneration of the liver due to invasion by the amebae, usually late in the course of the disease, it is obviously necessary to employ surgical interference. If secondary infection has apparently invaded the amebic abscess, quite often manifested by heart and kidney changes, it becomes necessary to evacuate the abscess.

If the diagnosis of acute cholecystitis should be made from upper abdominal symptoms of a severe nature and the removal of a diseased gallbladder does not relieve the patient, then one should be strongly suspicious of a coexisting amebic abscess of the liver.

DISCUSSION

Dr. Oscar W. Bethea (New Orleans): I think it is particularly fitting that we should have a discussion of the medical aspects of amebic abscess of the liver, and particularly by so competent an authority as the one who has just spoken to you. My long years of intimate association with him have given me the greatest respect for his opinion. I believe that we cannot too strongly endorse his emphasis with regard to early diagnosis in order that medical treatment may be applied, and yet, in looking back over the diagnoses that I have fumbled in past years, amebic abscess of the liver bobs up once or twice. Diagnosis is sometimes very difficult.

I wish to lend my endorsement particularly to his suggestion that emetine is the only parasiticide that will have any material influence on liver infection by the endameba. Chiniofon, or anayodin as it was originally called, is an iodine preparation, just as stovarsol and carbasone are arsenic preparations, and I do not believe that any of these are absorbed in sufficient amount to destroy the amebae that are reached only by the blood stream. I believe that emetine by hypodermic injection has a chance of doing that. In intestinal amebiasis, we use both types of treatment, that is, the emetine to reach those that are in the intestinal wall and a parasiticide by mouth for those in the lumen of the alimentary tract.

I do not share entirely Dr. Silverman's dread of emetine though so great an authority as Colonel Craig agreed with his view. I have seen only two cases of emetine poisoning. Both patients were taking large doses of ipecac by mouth as well as emetine by hypodermic. Both patients recovered completely.

Reid's work on the Pacific Coast, which was the greatest survey of this subject ever made, led to two conclusions: (1) That in all cases of emetine poisoning the dosage had grossly exceeded any reasonable amount, or (2) danger signals had been totally disregarded.

Dr. Daniel N. Silverman (In conclusion): There is an old saying that the burned child dreads the fire, and my dread of emetine comes from cases of emetine poisoning.

THE MANAGEMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA*

J. RALPH PHILLIPS, M. D.
BATON ROUGE

Chronic suppurative otitis media is manifested by a continuous or intermittent discharge from the middle ear and results primarily from inadequate medical and surgical treatment of acute middle ear suppuration. The pus is usually foul, but may be odorless. There is deafness of varying degrees, depending upon the location and severity of the disease process. Pain is not a common symptom and its presence at once suggests insufficient drainage or intracranial complications. There may be a continuous dull headache. Dizziness usually indicates internal ear involvement.

CLASSIFICATION OF OTITIS MEDIA

According to Lillie, chronic suppurative otitis media may be classified into four clinical types, as follows:

Type 1. In this type the discharge from the ear is mucoid in character and without characteristic odor of decaying bone. The perforation may be small or large, and may be situated in any portion of the tympanic membrane, either central or marginal. There is no suggestive evidence of underlying disease of the bone. The history is one of periods of dryness, sometimes of long duration, with a recurrence of the discharge in any acute infections of the upper respiratory tract. The discharge in these cases seems to come from the eustachian tube alone and treatment toward this end will usually terminate in success. X-ray of the mastoid cells usually shows some sclerosis.

Type 2. This is about the same as Type 1, but there are added evidences of disease of the bone, such as necrosis of the ossicles, and polyps. The perforations are usually large and x-ray of the mastoid cells usually shows some sclerosis.

Type 3. The discharge is purulent in character and there is considerable evidence of bone necrosis. There is also evidence of disease in the attic and cholesteatoma may be present. The membrane tensa is usually destroyed. The hearing may vary from approximately normal to various degrees of deafness which is characterized by fixation of the stapes. The x-ray of the mastoid cells usually shows some sclerosis.

Type 4. In this type the discharge varies in quantity, but is always foul and has the characteristic odor of cholesteatoma. The drum may be intact and the discharge may come through a fistula in the wall of the superior canal without any involvement of the ear drum.

Varying degrees of nerve deafness may be present, a positive fistula test may be discovered and a caloric test may reveal varying degrees of malfunction of the canal. The x-ray of the mastoid cells usually shows definite evidence of the presence of cholesteatoma. When these conditions are present attempts at medical cure are usually dangerous to the patient.

TREATMENT

The treatment of chronic suppurative otitis media may be divided into medical and surgical. Types 1 and 2 are especially applicable to treatment. In these cases abnormal conditions of the nose and nasopharynx may have a great bearing on the condition and attention should be directed towards correcting them, especially marked septal deflection and adenoidal vegetation. Some of the measures that have been used are the following: Installation of urea into the middle ear, x-ray therapy, alcohol and boric acid drops, alcohol and iodine, hydrogen peroxide, chromic acid, enzymol, cresatin, bacteriophage and vaccine, zinc ionization, silver picrate solution, and boric acid and iodine powder.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

From my experience I think the best medical treatment is the installation of boric acid and iodine powder into the middle ear along with the proper medication or treatment of the nasopharynx. I believe that all types of watery solutions should be avoided as they leave the cavity moist and lead to maceration. In all cases it is important first to cleanse the auditory canal from all secretions. This can be done by means of cotton probes dipped into alcohol. This should be carried through the perforation and the middle ear should be cleansed as well as possible. If granulation or polyps are present these should be removed by means of a small curet or snare, using a great deal of precaution, especially if they seem to originate in the region of the promontory. In removing polyps from this region one should be careful to avoid traction and avulsion of the growth, which should be cut off as close to the origin as is consistent with safety. Further reduction may be secured by the use of a chemical cautery, which should be stopped if signs of irritation of the inner ear are produced. After the ear has been cleaned as well as possible (which may necessitate several visits of the patient), then the ear should be thoroughly dried and the iodine and boric acid powder placed into the ear, being careful that the powder comes in contact with all parts of the middle ear. At first the powder should be placed in the ear twice a week, using the one per cent, and this should be gradually increased until the two per cent powder is used.

The patient should also be warned to avoid the following: Autoinflation, nose blowing, ear douching, diving, swimming, water in ear when bathing or washing the hair.

The dietary habits of the patient should be investigated and the patient placed on a high caloric diet rich in vitamins A, B and C.

Wolbach has recently shown a keratinizing metaplasia of the mucosa of the nose, sinuses and respiratory tract in vitamin A deficient animals and infants. This would include the middle ear and mastoid cells. He has also shown changes in the bone marrow in the lack of vitamins, which would have an effect in a lowered resistance of the bone itself and in a general lowering of resistance of the patient.

According to the clinical classification, types 1 and 2, and possibly type 3, will usually respond to medical therapy. However, if there is marked evidence of bone necrosis with possible x-ray or clinical evidence of cholesteatoma, then medical therapy is usually futile and some type of surgery must be resorted to. The amount of surgery usually depends upon the pathologic process. If the drum has been largely destroyed, the ossicles and tympanic membrane should be removed. If there is no destruction of the tympanic membrane and if the disease is confined to the mastoid antrum and attic, then the structure of the middle ear is usually left intact.

CONCLUSIONS

1. The clinical classification of Lillie has been followed in this paper.

2. Almost all patients with this condition will respond to medical treatment.

3. The best medical treatment is boric acid and iodine powder.

4. If there is marked evidence of bone necrosis and cholesteatoma, then surgical intervention should be followed.

BIBLIOGRAPHY

Christopher, Carl H.: Treatment of chronic suppurative otitis media with iodine powder, Illinois M. J., 71:176, 1937.

Lillie, H. I.: An empirical clinical classification of chronic suppurative otitis media, Atlantic M. J., 31:559, 1928.

Williams, H. L.: Classification and management of chronic suppurative otitis media, Iowa State M. J., 26:346, 1936.

Wolbach, S. B.: The pathologic changes resulting from vitamin deficiency, J. A. M. A., 108:7, 1937.

DISCUSSION

Dr. Monte Meyer (New Orleans): There is only one thing I want to add to this paper and that is in reference to a problem which we face, all of us, at times. Some one brings a child to you, seven or eight years old, with a running ear for the last four or five years. Everything has been done, but the ear is still draining, and the hearing remains good. Are you justified in having the child undergo a radical operation? No matter what form of radical mastoid you do, there is a certain amount of destruction of hearing. My advice is just to watch. I do believe that since the introduction of high vitamin diet results are better than in the past.

Dr. Phillips (In conclusion): I think young children who have had a discharging ear for seven or eight years present the most perplexing problem. However, I believe that a high caloric diet plus boric acid and iodine powder will take care of a majority of these cases. In a few cases it may be necessary to anesthetize a child and explore the nasal pharynx in order to remove any abnormal vegetation that may be present. I do not believe that any patient with chronic otitis media should be operated on just to correct the discharge, unless there are signs of intracranial complications present, because it has been shown that from 33 to 50 per cent of these patients continue to have the discharge after operation.

————o————

SYPHILIS CONTROL IN LOUISIANA*

FORD S. WILLIAMS, M. D.†
NEW ORLEANS

The problem of the so-called venereal diseases in this state has long been recognized. Both medical and social aspects of the most important one of these diseases, syphilis, have repeatedly been presented to interested medical, health, and social groups. Specialists in the City of New Orleans have continually bewailed the lack of facilities for diagnosis and treatment in other sections of the state for patients unable to pay. The lack of interest and knowledge among physicians in smaller towns and rural areas has been evident to those of the profession particularly interested in the problem.

Thousands of patients diagnosed as having syphilis in the charity hospitals of the state have been returned to their homes with recommendations for treatment or for further treatment when no local facilities for such treatment were available. Many of these same patients have returned to the attention of the physician or the hospital only after the pain of some late complication had prompted them to seek relief. Entirely too many such patients with cardiovascular syphilis and central nervous system syphilis, and other late complications, now fill the wards of our charity hospitals or mental institutions. They, and too often their families as well, present real medical, social and economic problems. And all the while health officers and physicians have seen crops of newly infected individuals appear—boys and girls, young men and young women, mothers or potential mothers with early acquired syphilis, new cases of syphilis in the newborn—many of which were the result of conception in women who, although previously known to have syphilis, received little or no treatment during pregnancy to prevent the birth of the syphilitic child. A majority of these new cases, under the old order, were destined to follow the same course as that described above.

All of this conclusively demonstrated to the thinking individual a need for an organized state-wide syphilis control program. I am glad to report that such a program is now in operation, and although only a modest beginning has been made, we have every hope that much can be accomplished.

NATIONAL PROGRAM

In 1936, Surgeon General Thomas Parran launched a nation-wide educational project in support of a proposed national venereal disease control program. I am sure that you are familiar with the ever-expanding public support given the Surgeon General in this venture. In the spring of 1938, the U. S. Congress passed the LaFollette-Bulwinkle Bill, or the so-called Venereal Disease Control Act of 1938. This Act, in addition to prescribing ways of control, also provided the U. S. Public Health Service with means for a national control program.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 22, 1940.

†Director of The Division of Venereal Diseases, Louisiana State Board of Health.

Three millions of dollars were thus provided during the fiscal year ending July 1, 1939 and five millions of dollars were provided for the fiscal year ending July 1, 1940. Indications are that funds in increasing amounts will be appropriated by Congress each year for a period of thirteen years, as provided in the Act.

The U. S. Public Health Service distributes, to state health departments of the various states, the majority of this money to be used in the conduct of state programs, retaining a small per cent for research purposes and for the development of special training centers and special studies. Funds are distributed on the basis of three factors: (1) Population; (2) extent of the venereal disease problem; and (3) the economic need of the state. From this source, the State of Louisiana received during the past fiscal year approximately $55,000.00 and for the present fiscal year ending in July, approximately $97,000.00.

STATE PROGRAM

On July 1, 1938, the State Board of Health set up, under the Bureau of Parish Health Administration, a permanent full-time Division of Venereal Diseases to establish and maintain a state-wide venereal disease control program through the expenditure of these funds. In general, the apportionment of funds toward the establishment of local programs has been made on the following bases: (a) The relative prevalence and importance of the venereal diseases in relation to all communicable diseases in the area; (b) the financial need existing in each area as determined by recognized economic indices, and (c) the ability of the respective areas to utilize funds effectively.

For reasons obvious to those familiar with the subject, many more real measurable results can be expected in the control of syphilis than in the control of the other so called "venereal diseases." Therefore, it was decided in the beginning that major emphasis would be placed on this disease. In the formation of a state-wide program, we should know something about the extent of the problem, about the prevalence and incidence of syphilis in Louisiana. Several methods could be used to obtain this information, some of which are:

1. A study of case-reporting by private physicians.
2. A study of hospital and clinic reports.
3. The so-called "Wassermann survey."
4. A study of patients admitted to state institutions with late complications such as involvement of the heart and great vessels or involvement of the central nervous system.
5. Comparative studies of the amount of syphilis occurring in pregnancy.

I am sorry to say that, due to various factors, none of these methods have as yet been successfully applied. Case reports received to date from physicians, hospitals and clinics are meager, incomplete and lack conformity, and are, therefore, of little use.

In only one area are figures available from Wassermann surveying, and these will not bear close statistical analysis. In East Carroll Parish, better than 4,000 negroes were tested, representing approximately one-third of the total colored population. Twenty-seven per cent of this number was found to have one or more positive serologic tests.

From our own experiences thus far, and from the application of rates determined for near-by states, we believe that the following statements can be accepted: Twenty per cent to 35 per cent of the total colored population is infected; five to 10 per cent of the total white population is infected. The rate among the colored is higher in the delta cotton-producing areas along the river and in the South Louisiana sugar and rice-producing areas. The rate is approximately twice as high for both races in the urban areas as in the rural areas, and correspondingly higher in the large cities. Several factors, including geographic location, prostitution, and transportation, lead us to believe that syphilis is relatively more prevalent in the seaport cities of New Orleans and Lake Charles than in other of the larger cities of the state.

I believe that we can accept the principle that the ultimate control of syphilis will come through one or both of two measures, namely: (1) Prophylaxis and (2) the location of infectious persons and their continuous treatment to a state of permanent non-infectiousness.

PROPHYLAXIS

Some of you may have witnessed the effectivenes of prophylaxis under military control during the first World War. Unfortunately, this measure cannot be applied to the civilian population in the same manner. Although many authorities feel that prophylactic agents now available—mechanical, chemical, and otherwise—are not being used to the best advantage, it is generally conceded that there is a great need for a new, easily applied, effective and inexpensive prophylactic agent. Since prophylaxis is so intimately connected with the question of contraception and related moral issues, this method is not actively used in most organized syphilis control programs. On the other hand, the diagnosis and treatment of infectious persons so as to render them permanently non-infectious, is the underlying principle used in a modern program.

Since this be true, we must develop a medium through which this procedure can be applied to all population groups in the state, including both those patients who are able to pay for these services and those who are unable to pay. With this in mind, the Louisiana State Health Department presented certain policies and plans to the Committee on Venereal Disease Control of the State Medical Society. These policies were unanimously approved by the members of the committee present, and the matter was referred to the Executive Committee for further action.

Briefly, it is planned that the State Health Department offer to each licensed practicing physician in the state assistance in the management of cases of syphilis in the practice of the individual physician, the type of assistance offered to be as follows:

1. Free laboratory facilities for diagnosis and treatment guide among patients who are unable to pay for such services. Facilities are included for serologic tests of blood, darkfield examinations and examinations of cerebrospinal fluid.
2. Professional education in diagnosis, treatment and control.
3. Consultation service for patients unable to pay consultant fee.
4. Free drugs for the treatment of all patients with syphilis who are unable to pay full fees.
5. Free public clinics at key points in the state to which patients who are unable to pay private physicians for anti-syphilitic treatments may be referred.

It is understood that: (1) All cases of syphilis must be reported to the Health Department, as required by law; (2) basic information concerning the cases of syphilis under treatment by the private physician will be maintained.

In other words, it is our aim to offer as much assistance as possible to the private physician in the management of all cases of syphilis in his practice whether they be pay, part-pay or indigent patients. In addition, we propose to establish free public clinics to which the physician may refer those indigent patients whom he does not care to treat.

During the past two years, the State Health Department established two additional branch laboratories, one located at Franklin, in St. Mary Parish, and the other located at Jennings, in Jefferson Davis Parish. Additional technicians have been employed for other laboratories in the state. A plan has been developed which will go into effect in May, whereby laboratory services available from all laboratories will be improved and made uniform. Facilities for darkfield examination have been placed in a number of established clinics.

In November, 1938, a Special Training Center for the teaching of diagnosis, treatment and control of syphilis to health officers, physicians, nurses and medical social workers, was established at the Louisiana State University Medical Center through a cooperative arrangement with the Medical School, the State Health Department and the U. S. Public Health Service. To date, 26 health officers and private physicians, ten nurses and one medical social worker from Louisiana have received intensive courses of training here. Refresher courses, to be conducted at key points in the state by physicians having special knowledge of syphilis and its control, have been planned. These courses, to be given cooperatively by the health department and the Committee on Education of the Louisiana State Medical Society, will be conducted in the same manner as those previously given throughout the state in the field of maternal and child hygiene. If our program is to be a success, well-trained, qualified, professional personnel must be made available.

Any physician may refer any patient for consultation to clinics operated by the Health Department provided the patient is unable to pay consultant fees. The patient will be returned to the referring physician together with a written report of the consultation.

Free drugs for the treatment of all patients with syphilis who are unable to pay full fees may be requested. The ability of the patient to pay will be left entirely to the discretion of the physician. Although free drugs have not been distributed to all physicians in the state who are treating syphilis, no recent requests have been rejected by the Health Department. It is understood that no drugs will be supplied physicians who do not properly submit morbidity reports and who do not supply requested information. In the near future, we propose to modify the system now in effect for the case reporting of venereal diseases. Also, it will be necessary to develop a system of records for the distribution of drugs. When these things are done, each physician in the state treating syphilis will receive proper information from the Health Department. I can assure you that physicians will not be requested to submit unnecessary information or to keep unnecessary records in connection with this program.

FREE CLINICS

Prior to 1936, there existed in this state, outside of the City of New Orleans, only two free public clinics for the treatment of syphilis. To date, 52 free public clinics are in operation in 26 of the 42 parishes in the state having full-time parish health units. These clinics are conducted under the supervision of the local health unit, as part of a local organized syphilis control program. Syphilis control is a recognized, legitimate public health activity which should be included in the program of any well-rounded community health service. It is therefore our aim to integrate syphilis control into the generalized public health program conducted by each of the 42 parish health units in the state. Obviously, efficient control programs can best be established in communities already receiving full-time health services. Four full-time clinicians and 42 part-time clinicians are employed. Although health officers still serve as the clinician in a few clinics in areas where qualified clinicians are not available or not interested, it is our purpose as soon as possible to employ clinicians for all clinics. The health officer can best spend his efforts with the public health side of the problem rather than with the clinical side.

The following statistics are available concerning patients with syphilis under treatment at these clinics during the semi-annual period July to December, 1939:

I. New admissions:	
Cases of acquired syphilis	2,527
Cases of congenital syphilis	235
Total	2,672
Acquired cases having early syphilis (duration of infection less than two years)	1,048
Acquired cases having late syphilis	1,479
Cases of syphilis in pregnancy	
Admitted prior to fifth month	59
Admitted fifth month or after	82
Total	141
II. Average number of cases under active treatment at any one time	5,195
III. Total number of clinic visits	91,266
IV. Number of injections of anti-syphilitic drugs administered:	
Arsenicals	40,339
Heavy metals	45,331
Total	85,670

Only those patients who are unable to pay for anti-syphilitic treatment are accepted. No patients are admitted who are not referred by officially recognized welfare agencies or by licensed practicing physicians.

In addition to the diagnosis and treatment of individual cases, there are four other procedures known to be of value in syphilis control. These are: education, case-finding, case-holding and the passage and enforcement of proper laws.

I have already mentioned the need for professional education and plans along this line. Education of the lay public is also important. Here, the social worker comes into the picture. In addition to solving the many social and economic problems presented by the syphilitic and his family, and in addition to assisting in the passage of proper laws, the social group can do much in the way of lay education. We health officers prefer to leave the social hygiene aspects of venereal disease control to the social hygienists.

The private physician can play an extremely important part in case-finding. In reality, the offices of private physicians compose the first line of defense against syphilis. The private practitioner has the first opportunity to make a diagnosis of early syphilis. Each physician, to hold successfully his part of the line, must possess, in the words of Dr. Stokes, "a high index of suspicion." And even this is not enough; he must take more bloods for routine serologic examination since approximately 65 per cent of all persons admitted to medical care present no signs or symptoms of the disease.

All hospitals and clinics, both private and public, should routinely blood test all admissions.

The health officer has available two useful methods for case-finding, the first being so-called "Wassermann surveys" and the second, "contact tracing." The dragnet surveys are most useful in population groups that are heavily infected, and the latter "sharp shooting" method is most useful where the infection rate is relatively low. Although the practitioner should lend his assistance and support, his position is not such that will permit him to go out into any population group and find cases by these methods. However, suspects found that are able to pay are referred by the Health Department to the private physician for diagnosis and/or for treatment. It is hoped that the physician will not only perform necessary clinical and laboratory examinations to prove or disprove a diagnosis of syphilis, but that he will also search for and treat conditions other than syphilis which may be affecting the health of the individual.

Although specific drugs are available, the adequate treatment of syphilis is a long, drawn out, painful, expensive and relatively unsatisfactory affair. Therefore, case-holding is an important procedure in syphilis control. The reasons why patients lapse treatment are many, most important of which are cost, lack of transportation, incompetent medical services, incompetent nursing services, unkindness or lack of sympathy, and reactions to drugs. A great deal can be accomplished by education of the patient and by removing possible or actual causes for lapsation of individual cases. We are particularly interested in keeping infectious persons under treatment until a state of permanent non-infectiousness has been reached. According to Public Health Service standards, this requires a minimum of 20 injections each of an arsenical and a heavy metal (usually bismuth). All public health clinics are graded not on the total number of patients admitted or on the total number of injections given, but on the average number of injections administered to early cases before lapsation occurs.

The public health nurse is usually the one responsible for the field duties connected with contact investigation. She is the one who must locate and cause to be examined, either by clinic or physician, familial and sexual contacts named by original cases. She is also responsible for the return of patients lapsing treatment. Therefore, much depends upon the efforts of the nurse.

The following statistics covering these activities in connection with our organized clinics are available for the semi-annual period July to December, 1939:

CONTACT INVESTIGATION

Number of contacts named		1,421
Number of contacts examined		1,134
Number of contacts found infected		
Prenatal (congenital)	35	
Acquired	304	
Total	339	339
Number infected, but not under treatment		281
Number induced to begin treatment		239

FOLLOW UP OF DELINQUENTS

Total number of lapses without permission	5,632
Total number of returns to treatment because of follow-up efforts	2,413

Time does not permit a detailed discussion of the last but not least important procedure useful in the control of syphilis, that is, the passage and enforcement of proper laws. Our present laws relating to all communicable diseases need revision. Special laws, such as prenatal and premarital, are of undoubted value when technically correct and properly executed. Certainly a premarital law should require the examination of both applicants for marriage and should require performance of laboratory tests for the diagnosis of hidden disease.

SUMMARY

I do not feel that I can close any discussion on syphilis control without mentioning the importance of case selection. The health officer must use discretion in the selection of syphilis control procedures in order that his purpose might be accomplished: that is, the ultimate control of syphilis. In like manner, the clinician must use a rigid method of case selection in the admission of patients for treatment. I personally feel that a great many patients with syphilis are now under treatment for whom treatment will accomplish little, either from the standpoint of the public health or from the standpoint of the welfare of the individual patient.

DISCUSSION

Dr. J. R. Heller, Jr. (New Orleans): Dr. Williams has given us a clear exposition of the venereal disease control program in Louisiana and I have only a few reflections concerning the program.

We have not been able to apply properly the so-called modern methods of venereal disease control. From the public health standpoint, syphilis control is somewhat different, in that treatment is the most powerful weapon in the armamentarium. As can be expected, we have progressed with the treatment, and that is as it should be. In Louisiana, as Dr. Williams pointed out, different methods of control have been utilized; that of treatment, of course, has been projected probably to the greatest extent.

I wish to recall to you that these Federal venereal disease funds appropriated by Congress, are allocated to the states on three bases: The population, the financial needs, and the extent of the venereal disease problem. It is easy to see that the states of the South would benefit most because usually the financial need is the greatest here, and the problem has been clearly defined as an obvious major public health problem.

I think much credit should be given the State Health Department for the advance in the number of venereal disease treatment clinics from two to 52. One is tempted to wonder why efforts to establish clinics have not been as successful in the urban areas as in the rural. Why are there not reasonably adequate programs in New Orleans, Baton Rouge, and Lake Charles? Probably, time will remedy this deficiency.

The role of the practitioner is of paramount importance in venereal disease control, particularly in regard to syphilis. About 66 per cent of all new early syphilis cases come first to the attention of the private practitioner. He is the one who has the greatest responsibility, in that he can direct these patients to the proper clinics or other medical treatment sources, if necessary, and of course, it is his opportunitv to do the most along educational lines. That is why it is so important for the private practitioner to understand completely and to cooperate to the utmost in the venereal disease control program of the State Medical Society and the State Health Department.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio

For one year: Lucien A. LeDoux, M. D., Vice-chairman.

H. W. Kostmayer, M. D.

For two years: John A. Lanford, M. D.,* Secretary.

For three years: Leon J. Menville, M. D., Chairman.

William H. Perkins, M. D.

EDITORIAL STAFF
John H. Musser, M. D.........................*Editor-in-Chief*
Willard R. Wirth, M. D...*Editor*
Edwin L. Zander, M. D....................*Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D.....................*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

---

*Died July 2, 1940.

JOHN ALEXANDER LANFORD
(1881-1940)

It is with sadness that we record the rather sudden death of Dr. John Lanford, a member of the Journal Committee for ten years. With the passing of this well-known pathologist, the Journal loses from its administrative ranks a man who worked faithfully and diligently to make the Journal a high standard state medical periodical. His good advice, his sane judgment, and his knowledge of men and affairs made him a splendid and loyal man for his position on the Journal Committee.

Lanford was born in 1881 in Gainesville, Alabama. He went to Auburn prior to graduating from the University of Alabama Medical School in 1905. He then migrated to New Orleans, where he became connected with the Department of Pathology of Tulane and in 1912 became pathologist of Touro Infirmary. Since 1914 he held the position of Assistant Professor of Pathology and Bacteriology in Tulane Medical School. He was consulting pathologist for several New Orleans hospitals. During the World War, Lanford had a variety of experiences in the two years he served in this country and in France. Following the War, he advanced in the Medical Reserve Corps to the rank of Colonel, obtained in 1932. He was active and a leader in the Reserve Officers organization in New Orleans.

President of the Orleans Parish Medical Society in 1932, and for many years before this Treasurer of the organization, Dr. Lanford was very active in the State Medical Society. As Chairman of the Cancer Committee since 1932, he put on a vigorous and active campaign to reduce the mortality of this dread disease. He was a member of many national societies as well as local organizations.

Lanford was a man of delightful personality; he was liked by every one with whom he came in contact. He was a vigorous and intelligent worker in whatever he undertook. Those who attended his clinicopathologic conferences at Touro will always remember with pleasure their excellent presentation. His death will not only be a loss to the Journal and to the organizations in which he was actively working, but also to a host of friends and medical associates.

AVIATION MEDICINE

In this day of European conflict and urgent rapid American preparedness, aviation and its associated problems are of tremendous importance and interest. As a result of the growth of aviation, the increasing use of the airplane commercially, and its demonstrated importance as an instrument of warfare, there was developed a special field of medical knowledge and investigation dealing with those individuals who fly.

Armstrong* briefly reviews the historical aspects of the subject and points out that this relatively new and rapidly growing field of medicine is not only of interest to specialists in this phase, but also to the general medical profession. It offers opportunities for physicians both in civil and military life.

As a result of World War I it was definitely shown that the careful selection of pilots on a physical basis was absolutely essential. Statistics showed that of every 100 pilots killed, two died as a result of enemy action, eight from defective equipment, and 90 from defects in the pilots themselves. As many as 50 per cent of the students in training developed neuroses before graduating as pilots. As a result of this experience a postgraduate school of training for flight surgeons was made a part of the Army medical education system.

There are over 31,000 licensed airplane pilots and 15,000 more in the training process in this country today, according to Armstrong. These must all be kept in physical and mental health. There are many special problems concerned with this task and the medical profession must acquaint itself with them.

The Army Medical Department is providing courses in aviation medicine for its medical officers. George Washington University School of Medicine presented a postgraduate course in aviation ophthalmology and aviation medicine this year, and two undergraduate schools have begun lectures on the subject to juniors and seniors. Armstrong predicts that other medical schools will undoubtedly follow this lead.

The rapid development of aviation medicine offers an opportunity and a challenge to the medical profession which it must meet.

---

*Armstrong, Harry G.: Developments in aviation medicine, Ann. Int. Med., 13: 2212, 1940.

MEDICAL PREPAREDNESS

The Committee on Medical Preparedness of the American Medical Association, established by the House of Delegates at the recent meeting, is circularizing the profession to secure their cooperation. A questionnaire is included for the purpose of properly cataloging information on the entire 117,000 or more members. This information is to be used only in connection with military purposes and is to facilitate prompt, immediate action in case of a military emergency to this nation.

Certainly every physician should be entirely willing to cooperate with the committee in this laudable endeavor. The medical profession responded and served nobly in the past, and there is no reason to doubt that they will respond again as adequately. All of us realize the necessity for preparedness, and this should be our contribution to the attempt to further this idea. Every member of the State Society is therefore urged to answer and return the questionnaire to the Committee on Medical Preparedness as early as possible.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

HUEY P. LONG HOSPITAL

Pineville

The following cases were presented at the weekly staff meetings and pathologic conferences held during the month of June:

1. This is the case of a 36 year old colored female who entered the hospital as a known syphilitic and had an ulcerative stomatitis. She presented the picture of extreme weakness and anemia, and was given a blood transfusion immediately after which a blood picture showed 9.2 grams, and 54 per cent hemoglobin, total red blood cells 3,870,000; white blood cells 12,000, 71 per cent polymorphonuclears, 20 per cent lymphocytes, 9 per cent monocytes; platelet count of 1,880,000 was also obtained

at this time. A sternal puncture was done and a smear obtained which revealed 10 per cent megalokaryocytes. Although only about 10 cases have been reported in the literature, a provisional diagnosis of megalokaryocytic leukemia was made. The patient remains in fair condition at the present time.

2. This is the case of a 35 year old white female who entered the hospital on June 22, 1940 at 8 a. m. On admission the patient was in profound shock and in a moribund condition. She had had a previous cesarean section in 1937. The patient had been having severe pain at the sight of the old cesarean section scar for 36 hours. Three hours prior to admission to the hospital the family physician had given the patient 1 c.c. of thytuitary. Immediately following the administration of the oxytocic the patient went into collapse at which time she was sent to the hospital. Emergency treatment for shock was instituted on admission but the patient died 50 minutes after admission to the hospital. It was evident that the patient had a ruptured uterus. A postmortem cesarean section was done and a dead baby was found free in the pelvic cavity. The uterus was ruptured at the site of the previous section and the abdominal cavity was filled with blood. The uterine rupture extended into the placental site with half of the placenta being free in the abdominal cavity.

3. This is the case of a 71 year old black male who entered the hospital complaining of locked bowels and vomiting of two weeks' duration. There were several small bowel movements until five days prior to admission since which time he had had no bowel movements but had continued vomiting with small pain around the umbilicus. The patient was operated for acute appendicitis in 1939 and had been considered in good health until onset of present illness. On admission the patient was extremely emaciated with a blood pressure of 190/140. All other physical findings were negative except for the abdomen which was moderately distended with some generalized tenderness, tympany above the umbilicus and a flat note below. A Wangensteen suction was started and a large amount of fecal-bearing material resembling the vomitus was obtained. The patient was given a rectal flush and a small amount of fecal material was expelled. Distention recurred each day during his stay in the hospital and each time was reduced by a Wangensteen suction and colon tube. The patient became progressively weaker and at no time was he in a condition to permit surgery. He expired on the seventh hospital day. Autopsy findings were intestinal obstruction which was produced by adhesions, apparently following the appendectomy, a section of gangrenous terminal ileum about 20 inches long and a generalized peritonitis.

4. This is the case of a 43 year old black female who entered the hospital May 30, 1940 about eight and one-half months' pregnant. Two days prior to admission the patient had painless vaginal bleeding, passing several small clots. A provisional diagnosis of possible placenta previa or possible premature separation was made. A sterile vaginal examination was done and a friable, bleeding, eroded cervix was found. Pathologic examination of biopsy revealed adenocarcimona of the cervix. A Porro section was done and and a normal, living, mature child was delivered. Patient is receiving deep x-ray therapy at intervals to the present time and is doing nicely.

Respectfully submitted,
A. K. Morris, M. D., Sec.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of July, the Society held one regular scientific meeting, at which the following program was presented:

1. Biographical Sketch: Dr. Warren Stone.
   By invitation..............Mr. Joseph Schlosser.
2. Special Report: The Cause and Prevention of the Loss of Teeth.
   By..Dr. C. C. Bass.
3. Symposium on the Effect of High Temperature on Body Functions:
   a. The Regulation of Body Temperature.
      By.........................Dr. Henry Laurens.
   b. A Review on the Effects of Heat.
      By.........................Dr. P. H. Jones, Jr.

The following physicians were elected to membership in the Society:

Active: Dr. Woodard D. Beacham; Intern: Drs. Mervin E. Fatter and Horace L. Wolf.

The Louisiana Association of Pathologists was formed Monday, June 24, an organization to promote closer cooperation among pathologists. At this meeting the following were elected to office: Drs. Edwin H. Lawson, president; Béla Halpert, vice-president; A. V. Friedrichs, secretary-treasurer; Maurice Couret, W. R. Mathews, and J. G. Pasternack members of the council.

The Secretary reports with regret the loss of Dr. John A. Lanford, one of the Society's active members.

NEWS ITEMS

Dr. Sydney Jacobs attended the recent meeting of the National Tuberculosis Association in Cleveland.

Drs. Erwin Wexberg and George F. Roeling recently attended the meeting of the American Psychiatric Association in Cincinnati.

Dr. Ambrose H. Storck attended a meeting of the American Neurological Association in Rye, June 6-8.

Dr. E. A. Socola attended the joint annual conference of the American Association of Medical Milk Commissions and the Certified Milk Producers' Association in New York, June 10-11.

Dr. E. L. Leckert was re-elected president of the Class of 1900 of the old Boys' High School at a reunion of this group held on June 13.

Dr. Donovan C. Bowne read a paper entitled "Primary Jejunal Pathology" at the American Medical Association convention in New York, June 10-14.

Drs. Gilbert C. Anderson, C. Grenes Cole, Eugene H. Countiss, J. A. Danna, Peter Graffagnino, Emmett L. Irwin, P. T. Talbot, and Edwin L. Zander attended the meeting of the Lafourche Valley Medical Society, June 19. Dr. Graffagnino presented a paper on "Office Endocrinology."

Drs. Max M. Green, Edgar Burns, and W. A. Reed attended the meeting of the American Urological Society in Buffalo, June 24-28.

Dr. T. B. Sellers addressed the Fifth District Medical Society in Monroe, June 25. The title of his talk was "Dysmenorrhea."

Dr. Isidore Cohn was guest speaker at the meeting of the Third District Medical Society in New Iberia, June 27. The subject of his talk was "Abdominal Surgical Problems."

Dr. W. J. Otis attended the meetings of the American Neurological Association and the National Catholic Hospital Association of America and Canada. Dr. Otis was also elected vice-president of the Federation of Catholic Physicians' Guilds of America.

Of the 69 students of the School of Medicine of Louisiana State University who received the Doctor of Medicine degree at the University commencement in Baton Rouge, June 2, 45 are from the State of Louisiana. Thirty-one also hold the degree of Bachelor of Science and 10 others the degree of Bachelor of Arts.

Physicians' attention is called to the advertisement of the National Physicians' Committee, which appeared in the June 22 and July 13 issues of the Saturday Evening Post.

TREASURER'S REPORT

Bank balance, May 31, 1940	$4,929.60
June credits	$ 171.17
Total credits	$5,100.77
June expenditures	$ 592.63
Actual book balance, June 30, 1940	$4,508.14

Edwin L. Zander, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

JOURNAL COMMITTEE RESOLUTION

The Journal Committee of the Louisiana State Medical Society met in sorrow today because of the death on July 2, 1940, of Dr. John A. Lanford.

Dr. Lanford was elected a member of this Committee in 1930 and has been a member continuously since then. In 1937 he was elected Secretary of the Committee and held this office at his death. He gave the same serious and faithful service to his work on the Committee that he gave to the many other positions of honor and trust conferred on him by his associates. He was a tower of strength to the Committee, especially in the matter of finance, and will long be missed from our counsels.

We extend our deepest sympathy to his relatives in their sorrow, offering only the inadequate consolation that we will cherish the memory of his too brief association with us.

PHYSICIANS NEEDED FOR ARMY SERVICE

The physician, like every other American, has become actively interested in our national security and stands ready to contribute his services as required for military preparedness.

The immediate problem in this connection is one that concerns the War Department, and primarily the young physician. The War Department must procure additional personnel from the medical profession to augment the medical services of the Regular Army as the various increases are made in the strength of the Regular Army, as authorized by Congress to meet the partial emergency. The young physician is especially concerned because it is usually advantageous, and is is often more convenient for him to serve with the Army.

Present plans of the War Department are designed to make service attractive and instructive for the young physician. If the physician holds a Medical Corps Reserve commission he can be ordered to active duty if he so requests. If he does not hold a commission, but is under 35 years of age and is a comparatively recent graduate of an accredited school, he may secure an appointment in the Medical Corps Reserve for the purpose of obtaining extended active duty for a period of one year or longer. Duty is given at general hospitals, station hospitals, and with tactical units, and embraces all fields of general and specialized medicine and surgery. Excellent postgraduate training is obtainable in connection with aviation medicine. After serving six months of active duty in the continental United States, a Reserve officer may request duty in Hawaii, Panama, or other United States territories and possessions. The initial period for duty is for one year and yearly extensions are obtainable thereafter until the international situation becomes more clarified and our domestic military program becomes stabilized.

Many young doctors who have served with the Army on extended active duty have taken the competitive examination for entrance into the Medical Corps of the Regular Army. Extended active duty affords an excellent opportunity for the physician to observe modern military medicine and the facilities that exist for a complete and comprehensive medical practice.

Further information may be obtained by writing to The Surgeon General, U. S. Army, Washington, D. C.

MEDICAL CORPS OF THE U. S. NAVY

The next examination for doctors of medicine desiring to enter the Medical Corps of the United States Navy will be held on August 19, 1940, at the following Naval Medical Department activities:

U. S. Naval Hospital, Chelsea, Mass.
U. S. Naval Hospital, Brooklyn, N. Y.
Norfolk Naval Hospital, Portsmouth, Va.
U. S. Naval Hospital, Pensacola, Fla.
U. S. Naval Hospital, San Diego, Calif.
Naval Medical Center, Washington, D. C.
U. S. Naval Hospital, Newport, R. I.
U. S. Naval Hospital, Philadelphia, Pa.
U. S. Naval Hospital, Charleston, S. C.
U. S. Naval Hospital, Great Lakes, Ill.
U. S. Naval Hospital, Mare Island, Calif.
U. S. Naval Hospital, Puget Sound, Bremerton, Wash.

Additional information may be obtained from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

FIFTIETH ANNIVERSARY

The Fenwick Sanitarium is celebrating its fiftieth anniversary of continuous operation for the care of nervous and mild mental diseases and drug and liquor addiction.

It was founded by Dr. Frank Fenwick Young at Abbeville, Louisiana, in 1890 and was moved to Covington, Louisiana, in 1912. Dr. F. F. Young is in complete charge of the operation of this Institution and is assisted in this work by several of his sons.

This Institution is registered by the American Medical Association, and is a member of the American Hospital Association, National Association of Private Psychiatric Hospitals, and the Louisiana State Hospital Association.

AMERICAN CONGRESS OF PHYSICAL THERAPY

The Congress will hold its nineteenth annual scientific and clinical session September 2-6, 1940, at the Hotel Statler, Cleveland, Ohio. Complete information may be obtained from the executive office, 30 North Michigan Avenue, Chicago, Ill.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The annual written examination and review of case histories (Part I) for Group B candidates will be held in various cities of the United States and Canada on Saturday, January 4, 1941, at 2 p. m. Candidates who successfully complete the Part I examinations proceed automatically to the Part II examinations held later in the year.

The American Academy of Ophthalmology and Otolaryngology will hold its forty-fifth annual convention in Cleveland, October 6-11, with headquarters at the Hotel Cleveland.

AMERICAN BOARD OF OPHTHALMOLOGY

There will be only one written examination during 1941. This will be held in various cities throughout the country on March 8.

If you plan on taking your examination during 1941, please write at once to the Board Office, 6830 Waterman Avenue, St. Louis, Missouri. Application must be made on the regular blanks provided for the purpose and must be received in the Board Office before December 1, 1940.

THE AMERICAN NEUROLOGICAL ASSOCIATION

The American Neurological Association, in its Executive Session at the Westchester Country Club, Rye, New York, on June 7, 1940, unanimously passed the following resolution:

Whereas, official statistics indicate that the immigration of refugee physicians is numerically small, representing in its totality less than .6 per cent of the practicing physicians of this country; and

Whereas, such an influx of physicians from abroad cannot adversely affect the economic welfare of American physicians if the emigrés are distributed widely to those sections of the land in which they are needed; and

Whereas, information gathered from governmental and private investigations indicates that there are at least 2,000 communities in this land in need of immediate medical staffing which in large part cannot be supplied by the graduates of our own medical schools; and

Whereas, many of the demands for physicians come from states in which it has become impossible, either by reason of legal enactments or because of regulations of the state boards, for the refugee physicians to take his medical license examination; and

Whereas, there now exists in New York a competent agency for diverting the unfit among the refugee physicians into non-medical fields, thus making it possible only for those who are fit in training and personality to be considered for examinations;

Now therefore be it RESOLVED, that the State Boards of Medical Examiners in the United States shall create a uniform policy with regard to refugee physicians so as to make possible the wide distribution of these physicians to those places where they are needed throughout the land; and

Further, that these uniform changes in the regulations of our State Boards shall be in the direction of the recommendations, made by Dr. David L. Edsall in his article on "The Emigré Physician in American Medicine" (Journal of the A. M. A., March 23, 1940, Volume 114, pages 1068-1073); and

Finally, that the Committee for Resettlement of Foreign Physicians of the National Refugee Service, Inc., 165 West 46th Street, New York City, shall be utilized as a clearing house for information in regard to available emigré physicians for specific placements.

HASSELTINE TRANSFERRED

The many friends of Medical Director H. E. Hasseltine, U. S. P. H. S., will regret that he has been transferred from the Leprosarium at Carville to a new position in Cincinnati, where he will be Officer in Charge of the Stream Pollution Investigations Laboratory. Dr. Guy E. Faget, who has been in San Francisco, is the new Medical Officer in Charge at Carville.

Senior Surgeon Oswald E. Denney, for many years in charge at Carville, is now Medical Officer in Charge of the U. S. Marine Hospital at Galveston, Texas.

Surgeon Winnfield K. Sharp, Jr., who has been on duty at New Orleans, has been ordered to Washington, D. C.

Dr. George F. Ellinger was commissioned as Assistant Surgeon, U. S. P. H. S., as of June 1, 1940. For several years, Dr. Ellinger was a teacher in the Medical School of Tulane University.

On motion of Dr. James Q. Graves, the nomination by the Board of Regents of Dr. J. H. Musser as a member of the Committee on Medical Education and Hospitals for a term ending in 1947 was confirmed by the House of Delegates of the A. M. A.

INFECTIOUS DISEASES IN LOUISIANA

For the week ending June 22, 1940, the twenty-fifth week of the year, the Bureau of Epidemiology of the Louisiana State Board of Health reported that syphilis headed the reported infectious disease for that week with 164 cases. The next most prevalent disease reported during that week was pneumonia with 57 cases. There followed in order pulmonary tuberculosis with 41, whooping cough and cancer with 32, gonorrhea with 24, typhoid fever with 23, influenza with 19, and malaria with 14. Four of the typhoid fever cases were reported from Orleans Parish, one case of which was listed as imported. There was one case of poliomyelitis from Jeff Davis; three cases of typhus fever were reported. The following week, ending June 29, showed a surprising decrease in the reported cases of syphilis to 53. Pneumonia headed the list for this week with 61 cases, an increase over the previous week. Typhoid fever was reported 14 times, and there were 33 cases of pulmonary tuberculosis, 10 of influenza, 41 of cancer, and 43 of gonorrhea. Five cases of diphtheria were reported and one case of hookworm. For the twenty-seventh week, ending July 6, the major diseases reported were as follows: 99 cases of syphilis, 52 of pneumonia, 26 of pulmonary tuberculosis, 17 of cancer, 15 of malaria, and 12 of typhoid fever. There were three cases of leprosy reported. Two cases of typhus fever were again reported, one from Iberia and one from Orleans. The report for the week ending July 13 showed a total of 22 cases of typhoid fever for this week. While this was a definite increase over the previous week, it was only about one-half as many cases as had been reported for the same week of last year. The reported cases of whooping cough had increased from four the previous week to 64 this week. There was one case of measles reported; it is remarkable to note that for the same week of 1939 there were 366 cases of measles. The report further showed the following figures: 131 cases of syphilis, 46 of pneumonia, 40 of pulmonary tuberculosis, 32 of cancer, 22 of gonorrhea, and 10 of influenza. There were also reported two cases of epidemic dysentery.

HEALTH OF NEW ORLEANS

For the week ending June 14, 1940, according to the report of the Department of Commerce, Bureau of the Census, there were 123 deaths in New Orleans, of which 77 were white and 46 negro. This was approximately the same as the number of deaths reported for the previous week. The infant mortality for the week totaled 14, eight white and six negro, 10 more than the previous week. There were 119 deaths for the week ending June 22, the proportions being 73 white and 46 negro. The infant mortality under one year of age totaled 11, five white and six negro. There was a definite increase to 140 deaths for the week which closed June 29, of which 83 were white and 57 negro. The infant mortality rate had also increased to 13, six white and seven negro. The following week, ending July 6, the deaths had dropped slightly to 135, 79 white and 56 negro. The infants deaths were also slightly reduced to nine, three white and six negro. To date the total accumulated deaths for the first twenty-seven weeks of this year is 361 as compared to 358 for a like period during 1939.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

CHAIRMEN OF STANDING COMMITTEES

Archives, Mrs. D. N. Silverman, New Orleans; Doctors' Day, Mrs. John Clayton, Norco; Exhibits, Mrs. J. S. Dunn, New Orleans; Finance, Mrs. T. H. Watkins, Lake Charles; Historian, Mrs. Edgar Burns, New Orleans; Hygeia, Mrs. Creighton Shute, Opelousas; Indigent Physicians' Fund, Mrs. W. R. Harwell, Shreveport; Legislation, Mrs. C. G. Cole, New Orleans; Organization, Mrs. W. D. Simmons, Covington; Parliamentarian, Mrs. A. A. Herold, Shreveport; Press and Publicity, Mrs. J. W. Rosenthal, New Orleans; Printing and Supplies, Mrs. R. J. Spedale, Plaquemine; Program, Mrs. A. G. McHenry, Monroe; Public Relations, Mrs. J. D. Frazer, DeRidder; Revision of By-laws, Mrs. J. W. Warren, New Orleans.

COUNCILORS

First District, Mrs. G. D. Feldner, New Orleans; Second District, Mrs. R. B. Harrison, New Orleans; Third District, Mrs. R. J. Young, Abbeville; Fourth District, Mrs. E. L. Gill, Shreveport; Fifth District, Mrs. A. D. Tisdale, Monroe; Sixth District, Mrs. A. W. Martin, Bogalusa; Seventh District, Mrs. J. G. McClure, Welsh; Eighth District, Mrs. S. L. Calhoun, Alexandria.

REPORT OF A. M. A. MEETING

Louisiana was represented at the annual meeting of the Woman's Auxiliary to the American Medical Association held in New York City, June 10-14, by two delegates: Mrs. A. A. Herold, of Shreveport, and Mrs. A. D. Tisdale, of Monroe.

The eighteenth session of the Auxiliary was opened in the Grand Ballroom of the Hotel Pennsylvania with Mrs. Rollo K. Packard, of Chicago, presiding. Registration for the first day showed a total of 908 delegates and members including the officers. Thirty-two states were represented, with 37 of the 38 states organized sending exhibits. It was the opinion of those present that more real interest was shown at this meeting than ever before.

Reports of the officers and chairmen of standing committees revealed the vast amount of work done not only by the president and other officers, but by these chairmen as well. Mrs. Packard has proved to be a very efficient president, and her report shows that she has visited 21 states during her term of office. Her recommendations to the Board of Directors, making changes that will prove to be the best policy, show that she has given a great deal of thought to her work.

Organization Chairman, Mrs. Thomas of Pennsylvania, reported a total membership of 23,003 members to date. Of the 6609 counties now organized 66 new ones were reported this year. Exhibit Chairman, Mrs. Beir of New Jersey, very proudly displayed her work with 37 exhibits. These exhibits, for the most part, were posters of scrapbooks showing what the states had done during the year. Louisiana's exhibits ranked side by side with the others. Public Relations Chairman, Mrs. Mosiman of Washington, presented a most interesting chart showing what each state had done in this work. Since this committee is one of the most important, it was urged by the chairman that we try to create good will and build public opinion by these methods: Acquaint the public with the change that is taking place by the move toward the establishment of political control of medical service; sponsor essays on health; have radio programs on health. Louisiana should be very proud of the report given by Mrs. A. A. Herold, Chairman of Legislation. Her report showed that a program of work to be done had been mailed to all states, with a suggested outline. Every doctor's wife was urged to vote. Her plea was to keep informed. Twenty-nine states reported having a legislative program.

The Program Chairman stated that the most popular programs during the past year were those on socialized medicine, Wagner health bill, medical legislation, cancer, tuberculosis, and maternal welfare. She emphasized that if we are to inform others we must first inform ourselves.

The Wednesday session, again with Mrs. Packard presiding, included the following important features:

1. Memorial services with Mrs. Frank N. Haggard, of San Antonio, Texas, in charge.
2. Resolutions expressing appreciation to the Journal of the A. M. A. for space given the Auxiliary; resolutions pledging support and loyalty to the A. M. A.
3. Reports of the State Presidents: Since only a few minutes were allowed to each one, it was impossible to give complete reports on the fine work done by the individual states.
4. Election of officers, with Mrs. V. E. Holcombe of Charleston, W. Va., taking office as president for the year 1940-41.

Since New York and the World's Fair offered so much in the way of entertainment, it would seem that the Hostess Auxiliary of New York would have nothing to do—but they did. With Mrs. Carlton F. Potter, of Syracuse, as chairman there were more things to do than one could possibly imagine. There was tea at Sherry's on Sunday to begin with, and dinner at the Waldorf-Astoria on Monday for the National Board. The luncheon on Tuesday at Hotel Pennsylvania with 400 guests present, followed by a trip to the Elizabeth Arden Salon for a special presentation of "Beauty in the Making," and the open meeting at the Waldorf-Astoria made indeed a full day. Dr. Morris Fishbein, Editor of the J. A. M. A., and Dr. Rock Sleyster, President of the A. M. A., spoke at the luncheon on Tuesday. At the luncheon on Wednesday Dr. Nathan B. Van Etten, the incoming president of the A. M. A. extended greetings, and Alphonse M. Schwitalla, Ph. D. Dean of St. Louis University, was the guest speaker.

It seemed to be the feeling of all the auxiliary members that the doctors themselves realize as never before what a potential power the auxiliary is and can be and that they want us to work as never before.

Signed: Leta S. Tisdale
(Mrs. A. D. Tisdale)
Delegate from Louisiana.

Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Press and Publicity Chairman.

BOOK REVIEWS

International Clinics, March, 1939: Edited by George Morris Piersol, M. D. Philadelphia, J. B. Lippincott Co., 1939. Pp 312. Price $2.50.

This volume should prove of interest, especially to clinicians. Among the essays noteworthy for information as well as for interest, may be mentioned a "Review of Gastroscopy"; "Significance of Hemorrhage in the Gastrointestinal Tract," and an "Outline of Electrocardiography" by Dr. Richard Ashman.

I. L. Robbins, M. D.

Directory of Medical Specialists, Certified by American Boards 1939: Edited by Paul Titus and J. Stewart Rodman. New York City, Columbia University Press, 1940. Pp. 1573. Price $5.00.

This, the only official Directory of its kind, lists approximately 14,400 Diplomates certified by the twelve special American Boards and one of the two affiliate boards.

A separate section is devoted to each American Board, with both a geographic and a biographic listing of its Diplomates. In addition, there is a complete alphabetic list of all the 14,400 Diplomates. In this list there are addresses and indications of specialty certification, while in the geographic sections complete biographic information is given. The organization and examination requirements of each of the American Boards are explained in full.

Columbia University Press.

Manual of Dermatology: By Carroll S. Wright, B. S., M. D. Philadelphia, The Blakiston Co., 1940. Pp. 376. Price $4.00.

This handy compendium, stressing the more common dermatoses which make up the bulk of the skin diseases seen in general practice, admirably suits its purpose. The manual is not intended to be an encyclopedic treatise on dermatology but instead to serve as a small text or reference work for medical students or for the busy practitioner of medicine.

A brief descriptive style has been adhered to and under each dermatologic condition concise paragraphs are given on synonyms, definitions, symptoms, pathology, diagnosis, prognosis, and treatment. The majority of the therapeutic measures recommended are those found useful and practicable by the author and are limited to the few modes which are most likely to be successful in the given case. The inclusion of up-to-date prescriptions is most commendable.

It is interesting to note the frequent reference to the value of superficial and filtered x-ray therapy in dermatologic treatment, emphasizing the statement made thirty years ago by William Allen Pusey: "It is hardly too much to say that roentgenotherapy is the most widely useful addition to the treatment of skin diseases that has been made."

M. D. Lang, M. D.

Clinical Parasitology: By Charles Franklin Craig, M. D., M. A. (Hon.), F. A. C. S., F. A. C. P., Col., U. S. Army (Retired), D. S. M., and Ernest Carroll Faust, M. A., Ph. D. Philadelphia, Lea and Febiger, 1940. Pp. 772. Price $8.50.

This volume of 772 pages by two well-known authorities is made up of nine chapters on protozoa and protozoan infections, nineteen chapters on helminths and helminthic infections, and eleven chapters on arthropods and human disease. A technical appendix of 50 pages, references to the extent of 26 pages, and subject and author indices, are provided.

The volume is adequately illustrated, many of the drawings being original. The clinical sections are generally brief, but sufficient and to the point; thus, under plague we find the following: "There is no satisfactory treatment for the disease," which is better than enumerating a host of agents of little or no worth.

Under the prevention of amebic dysentery the authors advocate the examination and treatment of food handlers employed in public eating places. We can readily agree that, theoretically, this measure in addition to others mentioned by the authors would be desirable, but application as a practical public health measure has not seemed possible to many sanitary authorities. The reviewer does not know of any important community in which the measure has been continued though it was inaugurated in many places after the tragic experience of Chicago in 1933.

Referring to swine as sources of human trichinosis, the authors do not differentiate between the types of feeding, e.g., grain-fed as against garbage-fed animals, nor do they mention "splinter hemorrhages" in the clinical diagnosis in man. Perhaps both these omissions are to be accounted for by the recentness of this publication.

The book presents the several subjects in authoritative and clear form. Suitable as a textbook for special students, it is perhaps more comprehensive than the medical student would need, though he could use it with great profit. Teaching of parasitology is notably deficient in many of our medical schools, and it is to be hoped that this volume will aid teachers who are not specialists in presenting the subject.

G. W. McCoy, M. D.

Treatment of War Wounds and Fractures, with Special Reference to the Closed Method as Used in the War in Spain: By J. Trueta, M. D. New York, Paul B. Hoeber, Inc., 1940. Pp. 146. Price $2.50.

This is a small book from the standpoint of size only. Containing a foreword by H. Winnett Orr, it is a vindication of the Orr method of treating wounds. A brief description of various methods of wound management since Paré indicate the vacillating trends in an attempt to find some chemical treatment for wounds. None has been found and rest and protection from repeated reinfection has proved itself as demonstrated again by Dr. Trueta under war conditions an outstanding method. The very nice photographs of war wounds before and after such treatment illustrate more vividly than the text the good results.

Fortunately this method has already received considerable publicity from its use in the Spanish Civil War. Most lay publicity has been of this sort so that an impression has spread that the method was developed and used first during that war. Such is far from the truth. It is American and it has gone abroad and returned to us under a different name. H. Winnett Orr deserves great credit for initiating this treatment of wounds and compound fractures; Dr. Trueta deserves credit for this demonstration of its value in military surgery.

Howard Mahorner, M. D.

Injuries of the Skull, Brain and Spinal Cord: Edited by Samuel Brock, M. D. Baltimore, Williams and Wilkins Co., 1940. Pp. 632. Price $7.00.

This extraordinarily effective and serviceable treatise covers a wide range of subjects and is a balanced, authoritative, precise discussion of the known facts concerning injuries of the skull, brain and spinal cord in their neurologic, psychiatric, surgical, medico-legal, and other relations. New developments in diagnosis, differential diagnosis and treatment are detailed in clear, concise language.

It is by no means easy to give a satisfactory summary estimate in this brief review but there are twenty-two parts which are mutually related in the production of an unusually complete, single volume. Each chapter is the work of a distinguished specialist and leading authority in his field and, aside from the point of view of one's special interests, it is quite difficult to attempt to determine which contributor has presented the best section. Dr. Symonds' presentation is very good and his views on convalescence in concussion and contusion of the brain are worthy of much notice. Particularly outstanding and well written chopters are those on "Neuroses Following Head and Brain Injuries"; "Psychotic States Following Head and Brain Injuries in Adults and Children"; "Simulation (Malingering) in Relation to Injuries of the Skull, Brain and Spinal Cord." The material appearing in them is of great value.

One rarely comes upon anything so perfectly done as is this book edited by Samuel Brock. It is accurate, authoritative, comprehensive, and lucid. It should be indispensable to doctors, lawyers, and those who deal with injuries and claims for insurance benefits and compensation.

The editor, the contributors and the publishers are to be heartily congratulated for creating this excellent manual which is, in every way, worthy of the subjects covered and which supplies a long felt want and is of vital interest to medical science.

C. P. May, M. D.

Dermatologic Allergy: By M. B. Sulzberger, M. D. Springfield, Ill., Charles C. Thomas Co., 1940. Pp. 540. Price $8.50.

The author of this book needs no introduction to medical men. Dr. Sulzberger has devoted his career to the subject of this work, and the present volume is the most comprehensive work thus far available in this field.

The text is well written; the descriptions are detailed and painstaking. The author is to be highly commended for keeping this a book of clinical information. The reviewer was particularly impressed with the comprehensive clinical discussions of atopic dermatitis and of urticaria. The bibliography is pertinent rather than comprehensive. A glossary is an unusual feature of the book. The illustrations are good and well chosen. Numerous tables and marginal notes facilitate the reading of the text.

Dr. Sulzberger astutely defends the rationale of skin tests, despite the fact that the hitherto available empiric evidence would vitiate such a position. The whole subject of the evaluation of skin tests requires a new orientation because of the introduction of purified and concentrated extracts into the field. The new empiric evidence substantiates the author's hypothesis concerning the clinical evaluation of skin sensitivity to allergens.

Only one note of adverse criticism must be mentioned. In common with most writers on medical subjects, the author fails to use efficient statistics for the analysis of his data. This is regrettable since the utilization of statistical knowledge would have materially enhanced the value of his conclusions.

The book is well worth while, for it does much to clear up the mental confusion that exists regarding this subject. The work should be a necessary item in the library of every dermatologist, internist, and allergist.

B. G. Efron, M. D.

PUBLICATIONS RECEIVED

M. Barrows & Company, Inc., New York City: Simplified Diabetic Manual, by Abraham Rudy, M. D.

The Commonwealth Fund, New York City: Psychiatric Clinics for Children, by Helen Leland Witmer, Ph. D.

F. A. Davis Company, Philadelphia: Medical Nursing, by Edgar Hull, M. D., F. A. C. P., Christine Wright, R. N., B. S., and Ann B. Eyl, B. S.

The Haynes & George Company, Inc., Newark, N. J.: The Era Key to the USP XI & NF VI, revised by Lyman D. Fonda.

Hospital Textbook Company, New York City: Legal Guide for American Hospitals by Emanuel Hayt, LL. B., and Lillian R. Hayt, M. A., J. D.

Lea & Febiger, Philadelphia: The Diagnosis and Treatment of Pulmonary Tuberculosis, by John B. Hawes, 2d, M. D., and Moses J. Stone, M. D. A Manual of Otology, Rhinology and Laryngology, by Howard Charles Ballenger, M. D., F. A. C. S.

J. B. Lippincott Company, Philadelphia: Modern Dermatology and Syphilology, by S. William Becker, M. D., and Maximillian E. Obermayer, M. D.

W. B. Saunders Company, Philadelphia: Clinical Diabetes Mellitus and Hyperinsulinism, by Russell M. Wilder, M. D., Ph. D., F. A. C. P.

University of Chicago Press, Chicago: Graduate Medical Education, Report of the Commission on Graduate Medical Education, Willard C. Rappleye, A. B., A. M., Sc. D., Chairman.

The Williams & Wilkins Company, Baltimore: The Surgery of the Alimentary Tract, by Sir Hugh Devine, M. S., F. R. A. C. S., F. A. C. S. A Method of Anatomy, by J. C. Boileau Grant, M. C., M. B., Ch. B., F. R. C. S. (Edin.). A Handbook for Dissectors, by J. C. Boileau Grant and H. A. Cates.

New Orleans Medical
and
Surgical Journal

Vol. 93 SEPTEMBER, 1940 No. 3

THE PROBLEM OF PROSTATISM*

M. H. FOSTER, M. D.
ALEXANDRIA

After a brief historical sketch, I shall discuss infection and malignancy incident to prostatism, and suggestions for improving the treatment of both.

HISTORICAL SKETCH

Although perineal section for stone was practiced by the ancients, the prostate was not discovered until 1550 by Nicolo Ulassa of Venice. At the same time Ambroise Paré was evolving improvements upon the instruments previously employed for breaking up obstructing "carnosities", transurethrally. Suprapubic cystotomy was first done by Pierre Franco in 1556. Though progress was to lag for the next 350 years, these three routes continue to compete for the attention of the bladder surgeon.

In 1886 Edison put a cold light in Nitze's cystoscope, and the American Association of Genito-urinary Surgeons was organized in New York. Since then events have transpired rapidly. By 1890 deliberately planned prostatectomies were done through the perineal route by Watson, of Boston; Wishard, of Indianapolis; Belfield, of Chicago; and Goodfellow, of Arizona; and through the suprapubic route by McGill, of Leeds, and Fuller, of New York.

Rejecting the Bottini instrument in 1898 as unsafe and inefficient, Young decided that accessibility was necessary for better enucleation. This was attained by passing two fingers into the rectum and pushing the gland upward into the suprapubic wound. Then he devised a tractor, pulled the gland into the perineal wound (1903), and accomplished a clean complete, anatomic enucleation entirely under vision, which will forever remain a monument to his creative genius. Before this time these operations were a blind and bloody business. Hemorrhage, uremia, and sepsis contributed a mortality that was somewhat higher for the suprapubic route, but many of those patients surviving the operation by the perineal route incurred dysuria, incontinence, or rectal injury.

Suprapubic operators blamed perineal surgeons for leaving behind intravesical intrusions, and the latter accused the former of failure to remove intra-urethral obstructing lobes. Two physiologic factors were then developed: First, a period of drainage for stabilizing a balanced ratio between kidney output and blood retention; second, large quantities of water to wash out infection. Young used up to 12,000 c. c. in 24 hours.

Geraghty and Rowntree brought out the P. S. P. renal output test in 1910; Folin and Dennis the chemical determination of nitrogen bodies retained by the blood, in 1914.

Urinary obstruction interferes with the elimination of uric acid and urea early, creatinin late. After decompression, satisfactory elmination of all these compounds is promptly resumed whenever kidney tissue is but slightly impaired, but Goldstein showed (1918) that high creatinin retention never came down when kidney tissue was more than half destroyed; therefore these patients cannot become safe for surgical procedure. Thus, after delay and kidney destruction, many fatalities have been due to the terrible triad: obstruction, stasis, infection, whether the bladder was drained by cystotomy, catheter, or not drained at all.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

Efforts at transurethral relief of bladder neck obstructions were resumed by Guthrie in 1834, but this subject had to wait another century for the development in mechanical equipment to catch up with the requirements of surgical conceptions.

In 1926 Maximilian Stern introduced the resectoscope. After endoscopic visual improvements by McCarthy, and the construction of a power unit by Theo. Davis, which was dependable for hemostasis as well as cutting under water, successful transurethral electrosurgical resection of most bladder neck obstructions became an accomplished fact for competent operators in the early thirties.

Obstructions differ fundamentally in type, as shall be seen later. The clean complete removal of the entire pathologically obstructing mass is demanded, leaving no devitalized tissues behind. Otherwise, a condition obtains which resembles an incomplete abortion in pathologic principle.

VanDuzen (1939) demonstrated that there is no anatomic capsule separating the prostate from the bladder, and that the glands are at first plain tubular. At the age of 16 they have become racemose, and as sexual maturity advances the acini dilate considerably, and increase in number tremendously. Lowsley (1912) showed that prostate hyperplasias arise from muscle cells, located in the urethral wall (or floor) of the postspermatic portion of the prostate, of lower Müllerian duct origin, developing similar to uterine myomas. Deming (1939) concluded that multiple suburethral spheroids, developing simultaneously or consecutively, first distort the urethra in contour, elongate it in extent, and finally compress the prostate tissue into a flattened out lamina or surgical capsule, against the fascia of Denonvilliers. It is between these confluent hyperplastic spheroids, and the compressed lamina of prostate tissue, that the so-called plane of cleavage is encountered. Following along this in all directions, the pathologically obstructing mass is removed while the anatomic prostate gland remains in a reinvigorating environment, to enjoy a better blood supply, since it has become freed of compression, and relieved of infection which was consequent upon obstruction.

The pathology of prostatism remained confused until 1931, when Randall classified five anatomic elements: Two lateral and a prespermatic lobe, an anterior, and a posterior commissure. Lesions rarely develop in the anterior commissure or the prespermatic lobe. Therefore bar formations, and the obstructing lesions arising from the lateral lobes and the posterior commissure (so-called middle lobe) are the conditions encountered surgically.

While the onset of subjective symptoms from acute retention is sudden and incidental to edema from infection, the intruding lesion is a definite pathologic entity of gradual development, often requiring years to obstruct. Progress of its encroachment and inbulging may be observed cystoscopically for perhaps a decade, and the type of prostatism accurately diagnosed, which is entirely impossible by rectal palpation.

Today the urologist has a satisfactory knowledge of surgical pathology, and three highly developed operations for its relief, each useful according to requirements, and no one of which can completely supplant the other two. The current curb service notion about electrosurgical resection is unfortunate, and often leads to disaster.

Twenty-five years ago Keys deplored the more than 20 per cent mortality subsequent to suprapubic surgical drainage. That was due to kidney destruction produced by the terrible triad. The abhorrent practice of prolonged urethral drainage is nice from the standpoint of mortuary cosmetics, but bladder paracentesis assures comfort and recovery. The former was bad for the perineal prostatectomist, but much worse for the resectionist, who makes infection inevitable by subjecting the urethra to a month of irritation and trauma by a foreign body, before it is to be torn up by a red hot drag line in a closed cavity. Engel reports six deaths in 14 cases where indwelling catheter alone was used. Chill occurred within 48 hours. This was due to kidney infection from urethritis.

With clean residual of less than 200 c. c. output and retention but slightly disturbed, no drainage is required. When it is, Lower and Engle, Kreutzman, Duffy, and Walther, and many others have advocated the suprapubic trocar with introduction of a Malecot catheter. The Engel and Duffy instruments are adapted for cystoscopy. No fatality is reported.

FACTORS AFFECTING PROGNOSIS

Today when the mortality from prostate operations in good hands is around 5 per cent, and the mortality from unrelieved obstructing prostatism is ultimately 100 per cent, there is every right to disabuse the public mind of the traditional horror for prostate surgery which it has held over from a time when that attitude had more to justify it.

Granting three requirements, prostate surgery is now safer than other surgery of similar magnitude at the same age. They are:

(1) A clean bladder, free from infection;

(2) A reasonably good cardiovascular system;

(3) Adequate kidney function.

When infection or malignancy complicates, these essentials are sacrificed.

With the advent of the ketogenic diet, and the chemotherapeutic drugs of the last few years, urologic bacteriology has assumed an importance never realized before. The characteristics of different organism types are well known, and their behavior is understood upon identification.

The urea-splitting group of the proteus type is urologic enemy No. 1. It develops stones, destroys tissue, produces foul grayish slough, prevents healing, kills patients by exhaustion and sepsis. It is controlled by acetic acid drip locally, sulfanilamide internally.

The Gram-positive staphylococcus is prone to produce metastatic cortical kidney abscesses. Intravenous neoarsphenamin checks this invader.

The Gram-negative bacillus inflames mucous membranes, with pus formation. Mandelic acid, or large quantities of water are indicated.

Secondary infections with abscess formation about the bladder and urethra must be relieved surgically.

MALIGNANCY

Albarran called attention to prostatic cancer in 1900. Young found cancer in 21 per cent of obstructions in 1926. The report of Rich and Moore on routine postmortem serial sections in 1935, revealed the startling frequency of occult carcinoma of the prostate. Though generally of slow growth and late metastasis, the small ones may metastasize early and extensively, producing bony and visceral manifestations, without dysuria, insidiously killing many more men than the number of women who die of uterine cancer. Such a patient will not consult his doctor because of prostate trouble; nevertheless his trouble is incurable cancer of the prostate, and the blatant goat gland evangelists continue to defraud a credulous public.

Every school child knows that appendiceal colic means immediate operation. Every doctor plans for cesarean section before the onset of labor. But the clinical conduct of many patients with prostatic cancer is still about a quarter of a century behind urologic attainments.

Here irradiation has failed. Both suprapubic and transurethral surgeons are agreed that these operations are not curing prostate cancer. Only a small number of highly important genito-urinary surgeons claim cures by perineal panprostatectomy, while the lesion is still local.

SUMMARY

A brief historical sketch of the development, pathology, and treatment of prostatism is given. The importance of infection and malignancy is discussed. Solution of the problem lies along two lines.

First: The public must be educated to the importance of periodic urologic examination after 50, instead of awaiting the compelling symptoms of pain, bleeding, dysuria, retention; that once obstructed, infection is imminent, and that deliberately planned removal under proper circumstances, is safer than procrastination and urethral instrumentation; that resort to the urethral catheter whether intermittent or indwelling, carries definite hazard.

Propaganda should emanate from the State Cancer Committee for the general profession and public alike, just as it has about cancer of the uterus. Both must learn that prostatic cancer kills more people than cancer of the uterus.

Second: Recording and reporting cases to the cancer registry; decompression by paracentesis is cleaner, safer, and more comfortable, than either cystotomy, or indwelling urethral drainage; defer cystoscopy until time of operation, then under adequate anesthesia the type of pathology may be determined in about two minutes, whereupon appropriate surgery is selected and carried out immediately; no one operation can fit all varieties of pathology.

Recent modifications in perineal surgery by Lowsley, Belt, Hinman, and others, afford a flexibility to this procedure, which now merits reconsideration by those of us who viewed with distaste the radical block resection offered by Young in 1914.

BIBLIOGRAPHY

Belt, E., Ebert, C. E., and Surber, A. C. Jr.: New anatomic approach in perineal prostatectomy, J. Urol., 41:482, 1939.

Culp, Ormond S.: Metastasis from occult carcinoma of prostate, J. Urol., 40:530, 1938.

Deming, C. L.: Anatomical origin of benign prostatic enlargment, J. Urol., 42:566, 1939.

Duffy, J. J.: Duffy trochoscope, J. Urol., 43:409, 1940.

Engel, W. J.: Preoperative prostatic mortality, J. Urol., 41:505, 1939.

Goldstein, A. E.: Diagnostic and prognostic value of blood urea, J. A. M. A., 71:1957, 1918.

Grauer, Theophile: Carcinoma of prostate, Surg. Gynec. & Obst., 68:295, 1939.

Graves, R. C., and Militzer, R. E.: Carcinoma of prostate with metastases, J. Urol., 35:224, 1935.

Harris, S. H.: Suprapubic prostatectomy with closure, M. J. Australia, 2:288, 1928. Brit. J. Urol., 1:285, 1929.

Hinman, Frank: Prostatism, J. A. M. A., 112:434, 1939.

Lewis, B. et al.: History of Urology, Williams & Wilkins, Baltimore, 1933.

Jacobs, Arthur: Suprapubic prostatectomy, Surg. Gynec. & Obst., 68:918, 1939.

LeDuc, I. E.: Anatomy of prostate and pathology of hypertrophy, J. Urol., 42:1217, 1939.

Lower, W. E.: Complete closure of the bladder following prostatectomy, J. A. M. A., 89:749, 1927.

Lowsley, O. S.: Development, human prostate, Am. J. Anat., 13:299, 1912. Idem: Total perineal prostatectomy, J. Urol., 43:275, 1940.

Moore, R. A.: Morphology of small prostate carcinoma, J. Urol., 33:235, 1935.

Morson, Clifford: Reconstruction operation (after suprapubic prostatectomy), Surg. Gynec. & Obst., 68:1060, 1939.

Randall, A.: Surgical Pathology of Prostate Obstruction, Williams & Wilkins, Balt., 1931.

Stern, Max.: Resection of prostate obstructions, J. A. M. A., 187:1786, 1926.

VanDuzen, R.: Development of prostate, J. Urol., 41:473, 1939.

Young, H. H.: Practice of Urology, W. B. Saunders, Phila., 1926.

Idem: Nelson's Loose Leaf Surgery.

DISCUSSION

Dr. Eugene Vickery (New Orleans): Numerous articles have appeared in the literature in the last few years regarding the effect of the male sex hormone, testosterone, on benign prostatic hypertrophy. It has been recognized for many years that the testes have some controlling influence over the prostate, as castration causes an atrophy of the prostate provided it is done before hypertrophy of the gland has taken place, but castration causes no decrease in the size of an adenomatous prostate. The trend of recent investigation of the use of testosterone in benign enlargement of the prostate shows that there is no appreciable decrease in the size of the gland obtained by administration of the hormone, and in some instances acute urinary retention has occurred during its administration. Observers who have reported good results in the use of testosterone have as a rule based their conclusions on clinical improvement. I do not believe we should belittle any treatment which gives relief or improvement, but we are all familiar with the temporary relief given at times by catheterization, massage, sitz baths, vasoligation, or administration of one of several drugs at our disposal. So let us not be deceived in judging the effect of a hormone or any other substance on the hypertrophied prostate by clinical improvement alone, but let us develop an accurate method of measuring prostates before and after the use of such substances, and in addition make observations of changes in the histology of the gland. At the present time there is no conclusive proof of any reduction in size of the hyperprostate after administration of any drug or hormone.

Thus the problem of relief of prostatism remains a surgical one. Here again there are conflicting opinions as to the best procedure to be employed, and the literature is full of the pros and cons for transurethral resection, suprapubic and perineal prostatectomy.

Pathologically prostatic obstruction is divided into three general types: (1) Benign hypertrophy (adenoma); (2) fibrosis (median bar and contacted vesical neck); (3) adenocarcinoma. (cf. Randall's anatomic classification above.)

Most urologists agree that patients with fibrosis are best taken care of by the transurethral operation on account of technical difficulties encountered by the other approaches.

The late Dr. Charles H. Mayo once said that anything done to relieve prostatic cancer is wrong. However, this was before extensive employment of the transurethral procedure, and it is generally agreed that this offers a comfortable functional bladder to these advanced cancers for a period of one to two years in most instances. The difficulty in suprapubic removal of adenocarcinoma is well known. A few urologists advocate radical perineal prostatectomy in early cases of malignancy, though they admit only 5 per cent of prostatic cancers have failed to break through the capsule when first seen. Radium and deep x-ray therapy are advocated by others, in addition to removal of obstructing tissue. Personally I have felt that results obtained by radiation fail to warrant the risk of discomfort often caused by it. Some adenocarcinomas are quite slow in their progress, and in the past year I have resected for a second time a patient who came in seven years previously with a fairly extensive grade II carcinoma. Relief with a sterile urine was obtained for this period. On the second admission there was no appreciable weight loss or evidence of metastases. He had no radiation and reports now that his bladder is essentially comfortable.

It is in the removal of the entire prostate or the obstructing portion of the benign hypertrophies where we find most divergent opinion as to the method of choice. Each case is an individual problem dependent on the size of the gland, the general condition of the patient (chiefly cardiac and renal) and the skill of the surgeon in the different types of operation. Results obtained are not uniformly good by either suprapubic, perineal or transurethral approach. Necessarily any operation which has as its aim a subtotal prostatectomy should give rise to a higher incidence of postoperative difficulty than a procedure where the whole gland is removed. However, the relatively low mortality in transurethral resection for glands of reasonable size in my opinion more than offsets this disadvantage.

Dr. M. H. Foster (In conclusion): I am in such complete accord with Dr. Vickery about the failure of hormone therapy to benefit established hypertrophies, that I omitted it from the discussion entirely, instead of damning it with faint praise as he did.

Competent urologists of large experience, after carefully controlled observations, have concluded that prostatic cancer is not being cured by irradiation (cf. Rudnik, Chicago). I have obtained an adequate outlet with comfortable voiding at each of three successive transurethral resections during four years. One patient, now aged 79 years, has a fired, stony, hard prostatic cancer, but plans remarriage.

Let me repeat one thing to emphasize what is not yet generally known: Abandon indwelling urethral drainage in favor of paracentesis, through the top of the bladder; learn how easy, comfortable, and safe, prostatic surgery can become when artificial drainage is done temporarily through an artificial opening, and the natural channel kept physiologically at rest while it is traumatized and infected.

MANAGEMENT OF CHRONIC PROSTATITIS*

C. O. FREDERICK, M. D.
LAKE CHARLES

The subject under discussion today is generally recognized by the medical profession at large as a very common condition in adult males of all walks of life. It is certainly the most frequent office problem seen in urologic practice. That its importance and frequency are being recognized today is manifest by the requests for reports regarding prostatitis by insurance companies and by the increasing number of patients referred for examination and treatment. Infection of the prostate and seminal vesicles will be considered as one disease since any pathology involving the one invariably includes the other (Wesson). It is of significance to point out that a large percentage of this group of patients under the classification of "non-venereal prostatitis" has never been infected with the gonococcus. The condition may be described as a chronic pyogenic infection of the prostate having its origin by direct extension from the urethra, or entering through the blood stream or lymphatics.

Because of the facts just enumerated a review of the symptomatology, diagnosis, and management of pyogenic prostatitis will be presented with special emphasis on measures used in treatment today.

SYMPTOMS

If one were to list the symptoms ascribed to prostatitis we could be easily induced to believe that an infected prostate gland is the source of all disease. An attempt however will be made to classify the symptoms under two headings, stressing the more common and those of most diagnostic significance.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

SYMPTOMS WITHOUT PAIN

1. Urethral discharge: The so-called "morning drop" which may be just enough to seal the meatus. This is probably the most frequent finding and is often the only reason the patient consults a physician. The discharge is usually of a mucopurulent character and is seen only in the morning or when the patient has not voided for a long period of time during the day (four or five hours).

2. Frequency and urgency of urination and occasionally nocturia: These are always secondary to posterior urethritis and trigonitis. In these cases microscopic pus is found not only in first glass but a few small clumps or free cells in the second glass.

3. Generalized feeling of being under par: Patient tires too easily and is especially fatigued in the evenings.

4. Mental: The patient may be sluggish and indifferent and unable to concentrate. Other changes seen are irritability and nervousness.

5. Sterility has often been thought to be due to chronic prostatitis but actually sterility as a direct result of infection of the gland must be infrequent as we see daily individuals with a marked degree of infection who have high fertility index.

6. Sexual symptoms: Contrary to what we would rationally expect prostatitis usually causes no sexual disturbances, but it may be responsible for every phase of disturbance from mild incapacity to complete impotency. Erections may be insecure, painful, or absent entirely. Ejaculations may be sensationless, painful, premature, bloody or they may occur without erections. A too frequent desire for intercourse may be present. A very frequent finding, and one which is a source of apprehension to patients, is the discharge of prostatic fluid at time of defecation. The hard stool presses against the congested and boggy prostate and forces out secretion which appears at the meatus.

PAINFUL SYMPTOMS

1. Backache is by far the most frequent painful symptom and is usually described as being "deep" in the lower part of the back. Prostatic backache is usually not severe; is sacral in type but may be lumbosacral. A typical history is that the patient is awakened in the morning by a discomfort in the lower part of the back which can be relieved either by voiding or changing position in bed. On arising he may or may not have stiffness on bending over.

2. Frequently and probably most annoying of all is the complaint of fullness in the rectum; itching and burning about or just within the anal orifice. There may be soreness and tickling in the neck of the bladder and perineum behind the scrotum.

3. Dull or occasionally very sharp pain in the urethral meatus. It is often difficult to convince the patient that the pain is referred.

4. Dull, aching pain in buttocks, thighs or calves of legs.

5. Infrequently sharp pain in the kidney region simulating renal colic.

6. Dull pain in the right lower quadrant simulating appendicitis.

7. Iridocyclitis, iritis and corneal ulceration are occasionally due to prostatic infection and prostatic massage should be performed with caution in the presence of such ocular lesions.

DIAGNOSIS

Ordinarily the diagnosis of chronic prostatitis presents no special problems and is dependent on the demonstration of pus in the uncontaminated prostatic fluid. It is important to emphasize uncontaminated prostatic fluid because if the secretion is obtained in the presence of an infected anterior urethra which has not been properly prepared or as more frequently happens an upper urinary tract infection, the pus derived at the meatus may easily be from these sources and not necessarily due to an infected prostate gland. Since diagnosis depends in the last analysis on the presence of abnormal prostatic fluid, a brief description—gross and microscopic—is timely. Infected prostatic fluid is not homogeneous but is granular and streaky. Microscopically varying amounts of lecithin and abnormal elements are found. The persistence or reappearance of lecithin under treatment is a favorable prognostic sign. Pus cells, in varying numbers either free or in clumps, are invariably present. Free pus best indicates fair drainage. It is not unusual to find a few red blood cells in fresh secretion but in the majority of cases it is impossible to demonstrate bacteria on stained slide.

In so many instances the mild symptoms of posterior urethritis associated with prostatic infection respond rapidly to routine treatment so that instrumental diagnostic methods such as cystourethroscopy should not be employed routinely. Such procedures are withheld for those cases presenting unusual diagnostic features, such as persistent discharge, persistent pyuria, hematuria or failure to improve under treatment. In summing up the main diagnostic points the following findings are important: (1) The presence of a change either in the size or contour of the prostate gland or in shape and consistency—that is, boggy in places—indurated in others; (2) tenderness on pressure; (3) pus present on microscopic examination of the secretion.

It must always be remembered that digital examination alone is not sufficient because one often finds a normal feeling prostate which on microscopic examination shows an abundance of pathologic processes.

A fact often emphasized but yet not sufficiently appreciated is that a single negative examination does not eliminate the presence of prostatic infection. This is borne out in practice frequently. It is essential to procure at least three negative examinations before declaring an individual prostate normal. Recent experimental work (O'Connor) has shown the definite advisability of the possibility of traumatizing the gland by too frequent manipulations and consequently obtaining false positive evidences of infection.

My feeling is that the proper execution of prostatic massage cannot be repeated too often so I will briefly review the technic as advocated by most urologists. It has been correctly stated by some that the prostatic massage is a crude procedure at best, consequently every effort should be made to become skilled in carrying out the process.

There are two very important axioms to be kept in mind: (1) Gentleness: I do not believe that too much stress can be laid on handling the prostatic gland with gentleness especially during the first few massages. I believe gentleness to be of utmost importance for many reasons; not alone because roughness will result in complications but also because better cooperation will be secured and the patient will continue treatments; (2) patient tolerance to massage must be considered and the thoroughness and frequency of treatment carefully regulated by the individual tolerance.

The most effective examination of the prostate gland may be made with the patient bending over a table or chair with knees slightly bent and toes turned in. The patient should present himself with bladder distended with urine or irrigating solution. The well lubricated and protected index finger is inserted in the rectum slowly and a careful examination is done consisting of sweeping the tip and flexor surface of the index finger over the surface of the gland and around its borders.

The lobes of a normal prostate are flat, flaccid and only moderately sensitive. There are no indurations or variations in consistency in the texture of the unaffected gland. The index finger is then introduced to the summit of the right vesicle and firm pressure and stroking is carried out along two or three parallel lines until a definite emptying is felt which requires six to eight strokes on either side. The left vesicle and left lobe of the prostate are then treated similarly, care being taken to avoid the midline. Finally the finger is drawn from above downward over the posterior urethra so as to express the secretion from the urethral floor ducts.

TREATMENT

In a consideration of treatment it is convenient to divide measures into: (1) General; (2) active.

Under general measures will be included all those designed to improve the patient's general health and should include the following: (1) Regular habits of eating and sleeping, especially sufficient sleep. (2) Careful attention to regular bowel elimination. This matter is so often neglected by busy professional and traveling men that time spent in explaining the importance of this matter in the plan of treatment is well worth while. (3) Regular but moderate amounts of exercise preferably in the open air. (4) Restriction of alcoholic drinks as much as possible; however in many cases it is inadvisable to restrict alcohol completely as the individual is urged to lead a fairly normal social existence. (5) Intercourse is not forbidden unless it is found to activate the disease. All acts which tend to produce chronic congestion of the prostate are prohibited such as over indulgence in sexual intercourse; the practice of "withdrawal"; the routine indulgence in virtuous petting parties.

Of all active measures indicated, prostatic stripping is recognized as the "sheet anchor" in conservative treatment. There is general agreement that this procedure should be carried out gently and in such a way as to express as much prostatic content into the urethra as possible. There is no general agreement however as to the frequency of treatments to obtain maximum results and more especially to guard against unfavorable reaction in the gland itself. Since the work of Ladd calling attention to the traumatizing effect of massage on the prostate of dogs, the interval between massage has been advocated as not oftener than four or five days. Also as Kidd and others have stated "prostatic massage is true vaccine treatment and should not be carried out more often than every four days." From this last viewpoint it is just as important not to overdo massage as it is to avoid overtaxing the immunity mechanism with large doses of vaccine. Other important questions arise; how long should massage be continued or should it be continuous or intermittent? My own plan is to treat these patients in courses rather than continuously. Routine massage is carried out every four or five days for eight or nine weeks, at which time usually the gland has decreased in size, the symptoms have subsided or lessened but ordinarily a certain amount of microscopic pus is still present in the secretion. A rest period from treatment, but not from hygienic measures is given, lasting from six to eight weeks, when treatment is resumed again. If the fluid still contains pus which unfortunately occurs frequently, the treatment course is continued as outlined above except that the duration of the rest periods is increased to three months or longer. In many instances of long standing prostatitis where we feel certain ultimate cure is unlikely our only attempt is to keep the pus at a minimum and to control any symptoms. I believe a fair percentage of patients if approached properly will not hesitate to return three times a year for prostatic treatment.

Dilatations: This form of therapy, while often a valuable adjunct in the handling of these cases, has not the prominence it once enjoyed. While the theory of dilatation with sounds and Kohlman dilators is reasonable, their too frequent use as a routine is not only inadvisable but definitely devitalizing and harmful. In support of their use, however, is the fact that large caliber strictures must be eliminated in all patients under treatment.

Irrigations and Instillations: Hot boric acid solutions or potassium permanganate 1-5,000 as bladder irrigations are very beneficial especially in patients with pyuria. They are not used routinely however in patients with a normal urine and are contraindicated when a man is not able to relax sufficiently, thereby making irrigation a difficult task, thereby inviting the use of high pressures or catheters. In cases where pyuria is absent and the patient complains of mild posterior urethral discomfort or sexual disturbances, I have secured better results with instillations of weak silver nitrate solution 1-1,000 to 1-500 into the posterior urethra following massage.

Heat: The use of heat in treatment of these cases is agreed upon and is certainly an efficacious means of relieving some symptoms. As a curative aid it may assist in the resolution of the infectious process in the tissues of the gland. The ordinary hot sitz bath is probably the most practical means of applying heat, as it is available to all patients daily.

Removal of Foci of Infection: Aside from prostatic massage this is probably the most important step in active treatment. Ordinarily we are not as keen in searching for existing foci as we should be. Abscessed teeth are probably the most important and dental opinion backed by suitable x-ray studies should be freely used. Infected tonsils or tags that are diseased and remaining after tonsillectomy, should be removed. The role sinuses and the gastrointestinal tract play as a focus of infection is less defined but they should be kept in mind in any case.

Drugs: Intravenous medication, especially mercurochrome 1 per cent, dilute hydrochloric acid and neoarsphenamine as in adjunct in treatment, has had many advocates but I believe it is being used with less frequency and enthusiasm as time passes. With the advent of sulfanilamide and its beneficial effects in other infections our hopes were extremely high, especially since it had been shown that the drug was excreted in the prostatic secretion. The results have been very disappointing; I believe, however, that it has a definite place in the treatment of certain cases. It has given rapid relief in many men with bladder symptoms, and pyuria has either cleared or been reduced markedly in amount. Unfortunately very few patients have been cured with this drug. The dosage has been small, not more than 30 grains daily and if relief is not prompt the drug is discontinued.

Vaccines and foreign proteins have all been disappointing to most physicians, and rarely are the results proportionate to the time and expense involved.

No discussion of this subject would be complete without mentioning the surgical approaches to the problem. Intraprostatic injections of chemicals has come to the front during the past few years and excellent results are being claimed by its supporters (Townsend and Grant). I have had no experience with this type of treatment but since the report of O'Connor and Ladd showing that results are due to the destructive effect on gland tissue, there has been considerable hesitancy to advise such a procedure.

Fairly recently Thompson, Cook and others have advised the use of the electrome in incising localized chronic abscesses found in the posterior urethra due to occlusion of protatic ducts. Since then Thompson and Orr have advocated the excision of segments of the posterior urethra with the resectoscope. Both ideas have as a basis better drainage of the ducts. These procedures are suitable only in a very small percentage of cases and require good judgment and more than average skill.

SUMMARY

A review of the more common symptoms of chronic prostatitis together with criteria for diagnosis is given. The technic of massage has been described and an analysis of methods of treatment given with suggestions as to their value.

I am well aware that nothing startling or new has been brought out in this paper on prostatitis, but it is hoped that this review will encourage a renewed interest in the handling of so common a condition.

BIBLIOGRAPHY

Cumming, R. E., and Chittenden, G. E.: Pyogenic prostatitis, J. Urology, 39:118, 1938.

Grant, O.: Treatment of recalcitrant prostatitis by drug injection, J. Urology, 39:150, 1938.

Haven, W. K.: The relationship of lesions of the nose, throat, accessory sinuses, and the eye to chronic pyogenic prostatitis, J. Urology, 39:128, 1938.

Herman, Leon: Practice of Urology. Philadelphia, W. B. Saunders Company, 1938.

Ill, H. M.: Yearbook of Urology. Chicago, Yearbook Publishers, 1936, p. 335.

Moore, R. A.: Inflammation of the prostate gland, J. Urology, 38:173, 1937.

O'Connor, V. J., and Ladd, R. L.: Intraprostatic injection, J. Urology, 37:557, 1937.

O'Connor, V. J.: Critical analysis of therapeutic measures in the management of pyogenic prostatitis, J. Urology, 39:156, 1938.

O'Connor, V. J.: Therapeutic value of prostatic massage, Med. Clin. N. America, 19:1181, 1936.

Orr, L. M.: Medical and surgical treatment of chronic prostatitis, Am. J. Surg., 39:602, 1938.

Ritter, J. S., and Lippow, C.: Pathological and bacteriological processes present in prostatitis, J. Urology, 39:111, 1938.

Schofield, F. S.: Management of chronic prostatitis, Med. Clin. N. America, 20:161, 1936.

Van Alstine, F. L.: The present status in the treatment of chronic prostatitis, South. M. J., 30:1089, 1937.

Wesson, M. B.: Symptoms of non-venereal acute and chronic prostatitis, J. Urology, 39:135, 1938.

DISCUSSION

Dr. Monroe Wolf (New Orleans): Dr. Frederick has so completely covered the subject that there is little left for me to add, other than reiterate with emphasis facts he has brought out with a few personal experiences.

First, I want to impress upon you the fact that the prostate is very rarely involved without involvement of the seminal tract, the common cause of chronic recurrent epididymitis for which condition Belfield originated and advocated vasotomy with injections of antiseptic solutions chiefly the milder silver salts. This technic has been improved upon in recent years by such men as McCarthy, Ritter, Herbst and others who advocate ejaculatory duct catheterization, dilatation and retrograde medication through the pan-endoscope. This latter procedure necessitates greater experience and practice for perfection with the necessary instruments.

I am firmly of the opinion that chronic nonspecific infection of the genital tract not associated with urinary tract infection or urethral stricture is secondary in origin from an infection either in the accessory sinuses or the alimentary tract which should cover everything from the lips to the anus, but rarely does this condition arise from a surface infection.

The symptoms of this condition have been so clearly elucidated that further mention would be superfluous.

I wish here to reiterate the advisability of urethral and bladder irrigation and the retention of a full bladder preliminary to digital rectal examination and massage of the prostate and vesicles for diagnosis and treatment. A large number of urologists advise attempting massage of the prostate and seminal vesicles separately for differential diagnostic purposes, a procedure I consider a practical impossibility in a majority of cases because of the difficulty in separate identification. Another point worthy of full consideration is the fact that a prostate and seminal vesicles normal to digital palpation and frequently symptomless will upon massage illicit pathologic excretions when the wet specimen is examined with the low and high powered lens of the microscope.

I am sure all present are familiar with the technic originated a number of years ago by the late Foster Johns, of centrifuging the excretions in a capillary pipet and staining a thin smear of the sediment with Gram's method. For several years I have modified this procedure by adding two or three loops of water to the sediment on the slide and mixing for a short period of time before fixing and staining. This is done to swell the protoplasm so that the capsule will not be contracted down about the nuclei of the pus cells. This technic was originated to facilitate the search for gonococci in suspected gonococcic infections, as well as to identify other micro-organisms.

At this point I would like to show a lantern slide illustrating the position I prefer to place my patient preparatory to palpation and massage. Being right handed, the patient is placed on a table on his right side with his right thigh and leg slightly flexed and the left thigh and leg greatly flexed so that the knee is against the chest, the body bending forward from the hips causing the buttocks to project well posteriorly. You will find this position much more satisfactory for the patient and for yourself, particularly should you have a psychic man-sized man collapse to the floor during a massage while in a standing bended position, besides eliminating the possibility of your patient going out and stating "that guy had both his hands on my shoulders when he massaged me" as you will be facing the patient.

When there is no evidence of urethral obstruction or stricture, my first attempt is to eliminate focal infection. This having been cared for I usually proceed with a series of irrigations and massages for a period of eight to 10 weeks as outlined by Dr. Frederick, never massaging a patient more frequently than every four days.

My experience with drugs and non-specific foreign proteins, either orally or parenterally, have not been very encouraging, although with your indulgence I will cite briefly a case that I consider of particular interest not entirely relevant to the title of Dr. Frederick's paper: A white male, aged 53, was referred to me after three months' treatment with sulfanilamide 20 grains daily, with little improvement of a positive gonococcic urethritis. I placed him on larger doses with urethral injections; the urethral discharge clearing up promptly, but in a period of four weeks after disappearance of discharge he developed an acute epididymitis with frequency, urgency, dysuria and very cloudy urine with no urethral discharge. The epididymitis subsided in four days with intravenous calcium medication but the very cloudy urine and urinary symptoms continued with gonococci in urine sediment for four weeks with the usual medication. At the end of this period, contrary to my better judgement and the reports of renal complications in the current literature, sulfapyridine gr. 7½ was given four times a day, with what I consider miraculous results, all symptoms subsiding and microscopically clear urine in 48 hours. The drug was given for a total of three days with a rest period of two weeks and repeated for three days. This patient has been clinically well for over three months, although he has not returned for a check-up of his prostate.

I have been a staunch believer in the use of heat in infections of the prostate but have never considered surface heat as applied by sitz baths penetrated sufficiently to reach the prostate. I have used diathermy or the Eissner recurrent water flow prostate cooler as demonstrated in the following lantern slides. There are several small electric apparatuses with rheostat controls on the market, of particular service is the one designed by Bransford Lewis which can be heated to 120° F.

I could not develop any enthusiasm over the direct injection of mercurochrome into the prostate when I heard Owsley Grant read his preliminary report in 1931 at the A. U. A.

There are certain cases of non-draining abscess complications where surgery is definitely indicated.

Dr. Frederick (In conclusion): From a symptomatic viewpoint I do not believe there is any other procedure as effective as hot sitz baths.

Possibly with regard to the drug sulfanilamide, I have not given it just due. However, in thinking back I can remember only a few patients, three or four in whom almost miraculous cure occurred. One was that of a student at Tulane in 1921. He contracted a specific infection and from that time to 1937 he had been in the hands of several urologists. In spite of persistence in treatment at no time was his prostate free of pus and evidence of infection in the urine. He was placed on sulfanilamide 25 grains daily. After taking this drug for three days he felt so badly it was discontinued. Next time I checked his urine it was free of shreds and his prostate free of pus. Three or four times since then I have checked this individual and so far I have not been able to find any evidence of infection. Although the results derived in this case are always present before me, similar results with sulfanilamide have been rare in my experience.

TREATMENT OF HYPERPLASIA OF THE PROSTATE WITH DIETHYLSTILBESTROL AND DIETHYLSTILBESTROL DIPROPIONATE

A PRELIMINARY REPORT*

PIERRE JORDA KAHLE, M. D.†
AND
EMILE MALTRY, M. D.†
NEW ORLEANS

Although castration and vasectomy were extensively employed in the treatment of prostatic hyperplasia during the latter part of the nineteenth century, and vasectomy remained popular till even more recently, both procedures have lost favor because of their lack of results. It is improbable that any interrelationship of the sexual hormones was suspected by the surgeons who advocated castration. It is more likely that the operation was supposed to exert some direct influence on the development and behavior of the prostate because of the observations made by John Hunter on the effect of castration on immature and adult experimental animals. It is now a well known fect that the testes elaborate androgenic substances and it has been suggested that prostatic hyperplasia is the result of a disturbed interrelationship between the pituitary and the testes. Lower and Johnston[1] have advanced a theory that hyperactivity of the pituitary gland leads to prostatic hyperplasia.

The synthetic male hormone, testosterone, has been widely used in the treatment of prostatic hyperplasia, with varying results. Salmon,[2] in experiments on female rats, noted the stimulating trophic effect of testosterone propionate on "the male vestiges, namely, the preputial glands, which are considered to be the homologues of the prostate." Heckel,[3] in an excellent paper, reported his failure to notice "any noteworthy reduction in the residual urine" or any improvement in clinical symptoms following this type of therapy. Histologic examinations on the glands of patients thus treated showed "no variation from the histologic sections of untreated patients." Our own experience has been that testosterone not only has no effect on prostatic hyperplasia, but at times seems actually to stimulate the gland to further growth. The experience of gynecologists has been happier. Geist and his co-workers[4] state that "testosterone propionate (in doses of 300 to 1000 mg. per month) inhibits menstruation and arrests the endometrium at the early proliferative phase, preventing the development of progestational changes. Larger doses caused varying degrees of regression of the endometrium to the state of hypoplasia or atrophy."

---

*Read before the Orleans Parish Medical Society, Monday, May 13, 1940.

†From the Division of Urology of the School of Medicine of Louisiana State University, and from the urologic services of Charity Hospital of Louisiana at New Orleans.

Several authors have reported the presence of estrogenic substances in the male urine, and Zondek, cited by Kochakian,[5] suggested that in the stallion the excessive secretion of estrogen could be attributed to the conversion of androgens by some metabolic process. Kochakian, however, experimenting with the subcutaneous injection of various androgens, showed that estrogens excreted by males are not the result of the conversion of androgens. He said, in summary, "The presence of this latter material (estrogens) in the male organism is due in part, probably, to an independent production by the testes and the remainder to some estrogenic source."

Although Deming, Jenkins and Van Wagenen[6] observed hyperplasia of the fibromuscular stroma of the seminal vesicles and prostate following the use of the estrogenic hormone, theelin, on a male macaque monkey, it does not follow that other and more potent estrogenic substances might not have a different effect in the human. Chemically related estrogens, it is known, may have entirely different actions. As the use of androgenic substances does not seem to be the answer to the problem of the control of prostatic hyperplasia, it may be that estrogens have a part in the development of hyperplasia of the prostate in the human. Again, some estrogenic substance may possibly influence and bring about in the human prostate changes comparable to the action of the androgens on the endometrium.

DIETHYLSTILBESTROL IN THE LITERATURE

The estrogenic substance diethylstilbestrol, which was synthesized in 1937 by Dodds and his co-workers,[7] was reported by them to be of much greater potency (two and a half times) than estrogen. The usually conservative lancet[8],[9] and British Medical Journal[10] both hailed it editorially because of its potent estrogenic properties and because "it is of great theoretical interest in that it brings the question of cell proliferation one step nearer to chemical control."

Noble,[11] in a preliminary report, stated that diethylstilbestrol had an inhibitory effect on the anterior pituitary gland similar to that of estrone, and was capable in every respect of replacing the action of estrone, even though the molecular structure of the synthesized substance bears little resemblance to that of the natural substance. He found it useful in inhibiting the anterior pituitary gland in the study of growth and of the endocrine organs. The inhibition of the gonadotropic effects of the anterior pituitary glad following the use of diethylstilbestrol was exhibited in male rats by atrophy of the testicles and a decrease in the size of the prostate and of the seminal vesicles.

Mellish and his associates[12] repeated and extended the earlier experiments on stilbestrol and added work on the dipropionate, because of reports of possible undesirable growth of the gonads of both sexes, as well as of the seminal vesicles and the prostate. They also found that the "dipropionate caused a greater suppression of the testes and prostate than did stilbestrol, but inhibited the seminal vesicles to a less degree." Parkes, Dodds and Noble[13] noted, among their other observations, that a rabbit which had received 1 mg. of diethylstilbestrol on the thirteenth, fourteenth and fifteenth days after mating, on the seventeenth day contained 10 embryos all being resorbed.

The successful use of diethylstilbestrol and diethylstilbestrol dipropionate in gynecologic practice in Europe, as well as the research studies on these substances in this country, raised in our minds the question as to whether hyperplasia of the prostate might possibly be due to a lack of balance between the androgenic and the estrogenic substances in the male. Some proof of this idea was found in the work of Wugmeister,[14] who expressed the view that hyperplasia of the prostate was due to a deficiency of the estrone normally present in males and who treated 23 patients with large doses of this substance, with resulting marked improvement, as well as a decrease in the size of the prostate. Our own work, as will be shown, seems to support this theory.

Deming and Wolf's[15] concept of the anatomic origin of benign prostatic enlargements also furnishes additional support as to the possible effects of these estrogenic substances on this condition. Their study of autopsy specimens from subjects 45 years of age and older led them to state that "the tissues, both fibromuscular and glandular, are certainly not just enlargements of existing elements, but duplication by many times. The primary fibromuscular elements invite epithelial hyperplasia and development of glands similar in appearance to the glands in the normal prostate. The term 'hypertrophy of the prostate' should be applied only to physiologic increase in the size of the prostate gland without multiplication of its components. It is evident that in prostatic hypertrophy in man we are not dealing with an hypertrophied tissue but with an hyperplastic tissue which has a tendency to develop from many focal points, to grow without limit and ultimately to cause death to the individual." If these observations are correct, it would seem that diethylstilbestrol might at least inhibit further hyperplasia of the prostate and might possibly even cause its regression.

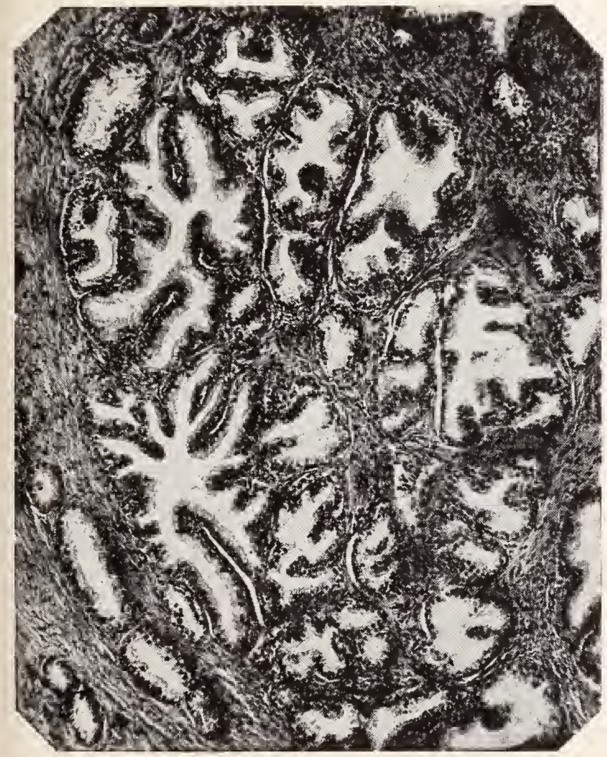


Fig. 1. Untreated hyperplasia of prostate. Note tall epithelium, numerous papillations, and relatively large acini.

Experiments on mice, cats, guinea pigs and rabbits by O. W. Barlow[16] in the Winthrop Chemical Laboratories showed " . . . a wide margin of safety between the toxic dose of diethylstilbestrol and the effective dose for laboratory animals," which " . . . permits some deduction as to the good immediate tolerance of therapeutic doses by human beings." It was found, for instance, that the intravenous lethal dose for cats, which was the lowest for any animals tested, is 30 mg. per kg., whereas the average clinical dose for a human subject weighing 60 kg. is only 1 mg. Karnaky,[17] in 25 clinical cases, used from 25 mg. (potency of 625,000 I. U.) to 55 mg. (potency of 1,375,000 I. U.) intramuscularly without ill effects. Winterton and MacGregor[18] reported that one of their patients took 21 mg. of diethylstilbestrol by mouth without ill effects and that occasional slight nausea was the only untoward symptom in 45 patients treated with this substance for various endocrine disturbances. Guldberg, cited by Loeser,[19] observed nausea in six of 15 subjects so treated.

These various observations seemed to indicate that diethylstilbestrol and diethylstilbestrol dipropionate could safely be used in the human subject. We therefore began to employ it in the treatment of prostatic hyperplasia, and to date have carried out the therapy in 14 cases, which we are reporting herewith.

The 14 patients will be reported in two groups, for obvious reasons. Group 1 consists of five patients seen in private practice, and group 2 of nine patients observed on the urologic service at Charity Hospital of Louisiana in New Orleans. The diagnosis of prostatic hyperplasia was based on the history and the general physical and urologic examinations. Urologic examination included digital examination per rectum, urinalysis and estimation of residual urine in all cases, with cystoscopy in six cases. In seven cases the patients' condition did not warrant cystoscopy, and another patient, in whom it was indicated, refused to permit its performance. No case is included in which a contraction of the vesical neck was known to be present. Histologic examination of the prostate gland was possible in one case in the private group and in eight cases in the Charity Hospital group.

RESULTS IN PRIVATE PATIENTS

All five patients in the private group were white, and their ages were respectively 51, 59, 65, 70 and 71 years. All had been under observation and conservative therapy for varying periods of time, without relief of the prostatic hyperplasia.

Urinary symptoms were present in all cases. The size of the stream was small in three cases and very small in two, and the force ranged from fair to very poor. After-dribbling was observed in all instances, and one patient had had complete retention of urine on two occasions. The nocturnal index varied from 2 to 6 and the diurnal from 4 to 10; hesitation varied from 2+ to 4+. The residual urine varied from 45 c. c. to 180 c. c.

Sexually three of the patients were virile, one fairly virile, and in the fifth patient, who was the youngest of the group, virility was rated poor to fair. Libido was marked in one patient, fair in three, and occasional in one. Many active spermatozoa were found before treatment in three cases; in a fourth case, although many spermatozoa were seen, they were only fairly active.

The prostate, as measured per rectum, was approximately 2.4 x 3 cm. in one instance, approximately 3 x 3 cm. in three, and approximately 4 x 5 cm. in one. Cystoscopy and cysto-urethroscopy were performed in four cases. All bladders showed trabeculations, and in two there was evidence of chronic cystitis also. In all cases there was crowding of the prostatic urethra by the lateral lobes; in two cases there was intravesical enlargement, with a beginning median lobe in one instance and a large median lobe in another.

Diethylstilbestrol in sesame oil and diethylstilbestrol dipropionate in olive oil were given intramuscularly in the following dosages: 355,000 I. U. in 32 days; 180,000 I. U. in 48 days; 220,000 I. U. in 34 days; 510,000 I. U. in 64 days; and 425,000 I. U. in 61 days. No other treatment was employed, except that catheterization of the bladder was performed at intervals to determine the amount of residual urine.

At the conclusion of treatment examination per rectum showed that the hyperplasia of the prostate had disappeared in every instance, the glands having been restored to normal size in all but one patient, whose gland seemed somewhat atrophic. In one case the consistency was firmer than normal. Evidences of beginning regression were apparent in every case within four days. In three cases the prostate was smaller by 50 to 70 per cent within two days. In another case a regression of 90 per cent was noted within four days. The only evident local reaction during this period was that the gland was soft and boggy.

Cystoscopic examination at the end of treatment revealed no evidence of lateral lobe obstruction in four cases, although the middle lobe, in two of these, still showed evidence of hyperplasia. The prostatic urethra appeared normal in contour and length in all cases. In the fifth case cystoscopy revealed a small nodule, which was thought to be a fibromyoma, and a slight bulging, about an eighth of an inch, of the right lobe of the prostate.

In all five patients the force and size of the urinary stream were improved, within two days in one instance, and in five, 11, 21, and 35 days respectively in the other cases. One patient, on the fifty-fourth day after the institution of treatment, had temporary difficulty in emptying the bladder. Nocturia and diuria were completely relieved in four cases within two, 10, 13 and 21 days respectively, and these patients can now hold urine from seven to 10 hours after retiring. The fifth patient, who is 70 years old and has a marked general arteriosclerosis, has had no noticeable relief in this regard, although he has no residual urine and no cystitis, and the gland, examined per rectum and by cystoscopy, has completely regressed.

Sexually, one patient, 65 years of age, complained within 10 days of lessened libido and poor erections. One, 59 years of age, believed the libido to be "no better and no worse," although orgasm was lessened and azoospermia was evident after the fifteenth day of treatment. One, 70 years of age, had no sex experience during the course of treatment. Two patients, 51 and 71 years of age respectively, noticed improvement in virility, and the former reported that his erections were firmer and more sustained.

In two cases, in which there had been a large amount of residual urine which contained pus, the urine cleared microscopically in both and in one case became microscopically free of pus. One patient who had had a mild prostatitis (10 to 20 cells per high power field) for several years, had an exacerbation of this condition on the twenty-first day of treatment, and the urine, which had been clear, became slightly cloudy and contained pus; the prostatic secretion at this time contained 300 to 500 cells per low power field.

Except for the exacerbation of the prostatitis just mentioned, and the possible effects on the sexual function, the only by-effects of treatment were nausea and cramps in two cases. Both patients had been given 5 mg. (125,000 I. U.) of diethylstilbestrol; the second dose was followed only by cramps, and the use of dipropionate in 1 mg. doses thereafter caused no discomfort at all. The other three patients, two of whom were treated by 1 mg. doses of dipropionate and the third by 5 mg. doses of diethylstilbestrol, made no complaints after treatment.

RESULTS IN CHARITY HOSPITAL CASES

Six of the nine patients in Group 2 were white and were aged 62, 66, 71, 78, 78 and 80 years respectively. The three colored patients were 60, 68 and 70 years respectively. At the time of admission to the hospital five of the six white patients and all three of the colored patients had complete retention of urine. All eight dribbled but could not void. Drainage of the bladder by catheter or suprapubically or by both routes was necessary in seven instances. Catheter drainage per urethram was instituted for one day, two days, 21 days, 48 days and 39 days, respectively, in five cases before treatment was begun. One patient had catheter drainage by urethra for 15 days and by lthe suprapubis route for nine days, and another drainage by urethra for 10 days and by the suprapubic route for three days before treatment was begun.

Under the circumstances, it was not possible to study diurnal or nocturnal frequency or residual urine in all these cases, and hospitalization precluded study of the effect of treatment on sex function and spermatogenesis.

After drainage, but before treatment with estrogenic substances was begun, the size of the prostate was estimated, respectively, as 4 x 4 cm.; 5.5 x 5.5 cm.; 5 x 7.5 cm.; 10 x 10 cm.; 10 x 7 cm.; 5.5 x 4 cm.; 5 x 6 cm.; and 7 x 7 cm. In one case, the right lobe measured 2 x 2 cm. and the left 4 x 4 cm. The residual urine measured on admission was 45 c. c., 150 c. c., 300 c. c., 350 c. c., 360 c. c., 700 c. c., 800 c. c., and 1,000 c. c., respectively.

In order to study possible histologic variations in this group of cases, both the dosage and the intervals between doses were varied, as follows:

Case 1. Diethylstilbestrol, 220,000 I. U. in 17 days.

Case 2. Diethylstilbestrol, 730,000 I. U., and diethylstilbestrol dipropionate, 80,000 I. U. in 19 days.

Case 3. Diethylstilbestrol dipropionate, 140,000 I. U. in 28 days.

Case 4. Diethylstilbestrol dipropionate, 260,000 I. U. in 32 days.

Case 5. Diethylstilbestrol dipropionate, 600,000 I. U. in 19 days.

Case 6. Diethylstilbestrol dipropionate, 300,000 I. U. in 15 days.

Case 7. Diethylstilbestrol, 375,000 I. U., and diethylstilbestrol dipropionate, 280,000 I. U. in 53 days.

Case 8. Diethylstilbestrol, 250,000 I. U., and diethylstilbestrol dipropionate, 220,000 I. U. in 27 days.

Case 9. Diethylstilbestrol, 600,000 I. U., and diethylstilbestrol dipropionate, 180,000 I. U. in 36 days.

It will be observed that in several of these cases the combined dosage was rather large: 810,000 I. U. in 19 days, 650,000 I. U. in 53 days, 470,000 I. U. in 27 days, and 780,000 I. U. in 36 days. The diethylstilbestrol was administered in sesame oil and the dipropionate in olive oil.

It was possible to examine only two patients in this group for residual urine and frequency of urination. One patient, who had a residual urine of 45 c. c. on admission to the hospital, had no evidence of retention after two doses of 5 mg. each of diethylstilbestrol on two successive days. His nocturnal index, which was originally 10 to 12, had been reduced to one by the sixth day. On the day on which treatment was begun a small median bar was resected, and 2.5 gm. of tissue were removed for examination from the smaller of the lateral lobes; the larger lobe was not biopsied.

The other patient in whom these observations were possible had residual urine of 1,000 c. c. on admission to the hospital. Within 12 days of treatment (20 mg., 500,000 I. U., of diethylstilbestrol) it had been reduced to 200 c. c., and by the nineteenth day, when it had been reduced to 60 c. c., he had a large stream of good force.

One patient complained of gastric disturbance after receiving 3 mg. (60,000 I. U.) of diethylstilbestrol dipropionate, but since he had previously been treated for peptic ulcer it is not clear that the estrogenic substance was responsible for his symptoms. The other patients experienced no untoward effects.

The prostate was removed by enucleation or resection or examined at autopsy in all patients in this group after they had received varying amounts of the estrogenic substances. In the meantime, all glands had shown evidence of reduction in size on examination. In three instances the glands, when examined by rectum, were of normal size at the time of operation. In another case the gland, which measured approximately 10 x 10 cm. on admission, was the size of a walnut after 33 days of treatment (360,000 I. U.) and weighed 17 gm. In one case, although the size of the prostate (4 x 4 cm. per rectum) had not been affected by 21 days of bladder drainage, a regression of 50 per cent was observed after two days of endocrine treatment, and when enucleation was done at the end of 17 days of treatment (with a dosage of 240,000 I. U.), the gland was the size of an English walnut and weighed 17 gm. In another case a 40 per cent reduction in size was observed after nine days of treatment, and at enucleation on the nineteenth day of treatment, after a dosage of 810,000 I. U., the weight of the gland, including the large middle lobe, was 65 gm. In three other cases regressions in size of 15, 20 and 33 per cent respectively were observed within two days.

Three patients died during the course of treatment, from causes not connected with therapy. Autopsy was performed in each case within four hours of death.

One patient, 70 years of age, died of intraventricular septal infarction, coronary thrombosis, multiple pulmonary infarcts, and myocardial infarction. Definite myocardial changes had been demonstrated by electrocardiography. In this instance a total of 650,000 I. U. had been administered in 51 days and the residual urine had been reduced from 1,000 c. c. to 60 c. c. The prostate, per rectum, was of approximately normal size. When it was removed at autopsy, it was unfortunately not weighed, but the lateral lobes were still somewhat enlarged and there was a fairly large middle lobe.

One patient, 66 years of age, died of pyelonephritis and pyoureter, conditions which are commonly found in association with prostatism. Electrocardiography had showed suggestive evidence of myocardial disease and roentgenologic examination had showed a moderately enlarged heart. The prostate had regressed in size from approximately 6 x 5 cm. to 3 x 3 cm. after 470,000 I. U. had been given in 34 days.

One patient, 80 years of age, also died of bilateral pyelonephritis and pyoureter. He had had prostatism for 20 years, and when he entered the hospital he complained of severe nocturnal dyspnea and edema of the extremities. He had chills and fever at the time of admission, and the electrocardiogram showed definite evidence of myocardial disease. Catheter drainage per urethram was instituted. Four days before death, after the administration of 730,000 I. U. in 35 days, the prostate showed a regression of 50 per cent in size; at autopsy it was found to measure 3.75 x 5 cm., instead of the original 7 x 7 cm.

The histologic changes in the glands which could be examined will be reported in detail elsewhere. No attempt will be made in this communication either to discuss the exact chronologic order of their appearance or to correlate the dosage and duration of treatment with the changes observed. Certain general statements, however, may be made at this time. The greatest changes were observed in the glands of those patients who had received the largest total dosage. The positive findings (as reported by Drs. J. R. Schenken and E. L. Burns) included reduction in the number of papillary infoldings, reduction in the height of epithelium, vacuolization of the cytoplasm of the epithelium, decrease in the size of the acini, and stratification of the epithelium with and without vacuolization of cells. The stratification of the epithelium was most marked in the patients whose tissues had been removed from 16 to 62 days after treatment was begun.

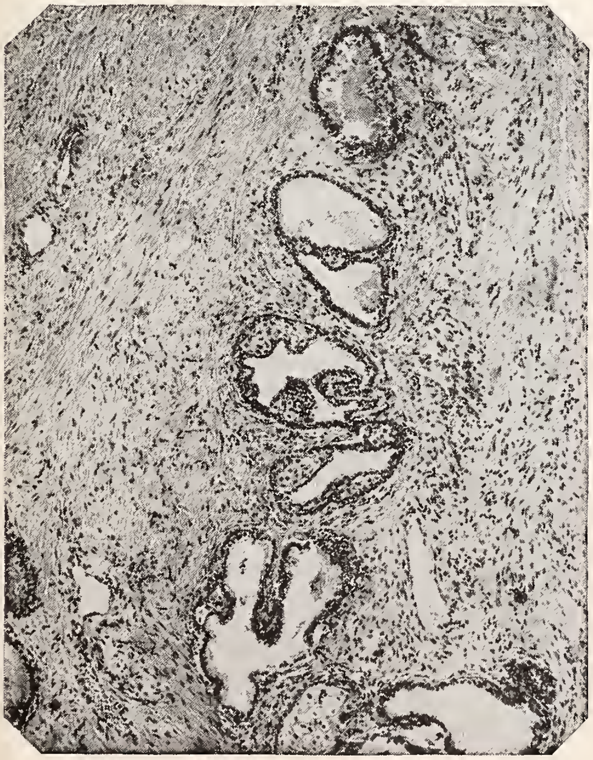


Fig. 2. Hyperplasia of prostate, treated for 16 days, receiving 220,000 I. U. of diethylstilbestrol; enucleated on twentieth day following initiation of treatment. Note lowering of epithelium, relatively small acini, stratification of epithelium, and diminution in size and number of papillations.

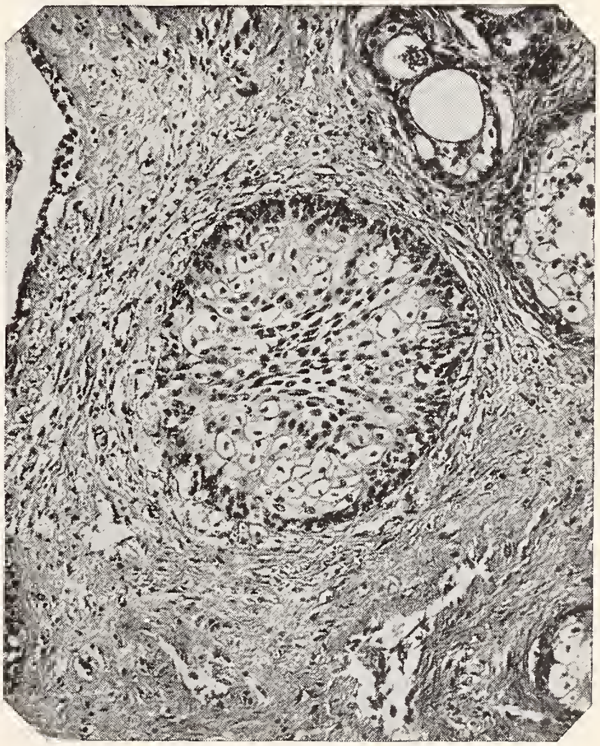


Fig. 3. High power view of a single acinus of prostate in which patient had received 450,000 I. U. of diethylstilbestrol in 33 days; enucleated on thirty-sixth day following treatment. Note stratification of epithelium completely filling lumen and hydropic degeneration of cytoplasm of cells.

The following case reports are presented as typical:

CASE NO. 1

B. J. H., a white male private patient, 59 years of age, had had the symptoms and physical findings of hyperplasia of the prostate gland for three years. During this time he had been under observation and treatment for prostatitis at various intervals. The diurnal urinary index was 5 and the nocturnal 2-3. The stream was small, slow in starting, and lacking in force. Rectal examination showed both lateral lobes of the prostate enlarged, and the size of the gland approximately 2.5 x 2.5 cm. It was firm and not tender.

The urine was clear and urinalysis showed no abnormalities. The amount of residual urine was 60 c. c. The excretion of phenolsulphonphthalein was 75 per cent in two hours. The Wassermann reaction was negative. Examination of the ejaculate showed many active spermatozoa. Examination of the prostatic secretion showed no bacteria and 10-12 pus cells per high power field. Cystoscopic and cysto-urethroscopic examination revealed no abnormalities of the bladder other than trabeculations. The prostatic urethra was lengthened, both lateral lobes were hyperplastic and bulged into the urethra, where they came together, and a large middle lobe was present.

Treatment consisted of intramuscular injection of 1 mg. of diethylstilbestrol dipropionate on alternate days for four days, and then at intervals of five days. A total dosage of 180,000 I. U. was given over a 48 day period. Two days after the first injection the prostate was reduced in size by 50 per cent and the consistency was very soft instead of firm. Within 12 days the gland was of normal size but still somewhat boggy. Within two days after the beginning of treatment the stream was improved in force and nocturia had disappeared. Ultimately the stream became strong and full. Residual urine was no longer present nine days after treatment was begun.

One month after treatment was begun the patient complained of some diurnal frequency of urination and a sense of bladder fullness. The prostate was boggy on rectal examination but was not enlarged. Prostatic secretion revealed no bacteria but from 300 to 500 pus cells per low power field. The urine was cloudy. The symptoms lasted four days, then disappeared, and the urine became clear after two massages. Cystoscopic examination on the thirty-sixth day of treatment showed no evidence of bulging of the lateral lobes into the prostatic urethra. The right half of the middle lobe was still fairly large, but there was complete regression of the left half. There was slight edema of the veru montanum.

CASE NO. 2

A. W., a white male private patient, 51 years of age, had had gonorrhea 30 years ago. He had had typhoid fever, influenza and pneumonia, had been operated on for a right inguinal hernia 26 years ago, and had had all his teeth extracted nine years ago. When he was first seen he complained of impotence for six months, lessened libido, and burning on urination for 23 days. He had frequency of urination, but no urgency or tenesmus. The nocturnal urinary index was 2-3 and the diurnal 8. The stream was slow in starting, was small and lacking in force, and could be projected only a few inches. The prostate, examined by rectum, was not tender, but was enlarged to approximately 3 x 3 cm.

The Wassermann reaction was negative. Urinalysis showed clear, normal urine. The residual urine was 45 c. c. The excretion of phenolsulphonphthalein in two hours was 70 per cent. The seminal secretion showed many active spermatozoa. Cystoscopy and cysto-urethroscopy showed both lateral lobes crowding the prostatic urethra, and very slight intravesical projection. The bladder was slightly trabeculated.

Treatment consisted of one 5 mg. dose of diethylstilbestrol, followed by 1 mg. doses of diethylstilbestrol dipropionate on alternate days for eight doses, after which 1 mg. was given every fourth day for three doses, and, finally, at weekly intervals for four doses. The total dosage was 425,000 I. U. and treatment covered 61 days.

Immediately following the first dose the patient's symptoms were improved, he had no nocturia, and the stream was stronger. Following the second treatment he complained of slight burning in the urethra and on the shaft of the penis. The prostate, per rectum, was smaller and softer. On the eighth day of treatment the gland was of normal size and the right lobe was slightly firmer. There was continued improvement in the size and force of the stream, and by the eleventh day projection to three feet was possible. At this time the left lobe of the prostate had become normal in size and consistency, and the right lobe was normal except for a firm ridge about 0.5 cm. thick on the outer margin. Some continuing diurnal frequency of urine, and occasional nocturia, were considered due to an excessive use of coffee. By the twentieth day of treatment nocturia had disappeared and the patient could hold urine for eight hours. He had had sexual intercourse and reported that the erections were firmer and more sustained. Rectal examination showed the ridge on the right lobe of the prostate to have shrunk except for a small nodule on the outer margin near the apex. On the twenty-fourth day the prostate per rectum was of normal size and consistency. The seminal secretion (condom specimen) showed occasional pus cells per low power field, and one or two spermatozoa to every fourth high power field. They stained poorly with methylene blue and the tails were either absent or swollen; the heads deviated from normal.

A month after the beginning of treatment cysto-urethroscopy showed no evidence of prostatic enlargement, the patient slept 10 hours withouth emptying his bladder, erections were very good and persisted even after ejaculation, and examination of the prostate per rectum showed it to be normal in size and slightly firmer than normal in consistency.

CASE NO. 3

C. M., a white male, 71 years of age, was admitted to Charity Hospital of Louisiana January 3, 1940, complaining of bladder trouble for one year, dribbling for three weeks, and severe dysuria. The diurnal urinary index was 6-7 and the nocturnal index 3-5. There had been complete retention of urine for three days before admission, and prior to that the stream had been of no force and little volume. Physical examination showed an emaciated subject. Rectal examination showed the prostate gland to be approximately 5.5 x 5.5 cm.

The residual urine was 150 c.c. Urinalysis revealed occasional pus cells per high power field. January 16 the phenolsulphonphthalein excretion was 40 per cent in one hour; February 8 it was 30 per cent in one hour and March 12 it was 45 per cent in two hours. The Wassermann reaction was negative. The non-protein nitrogen of the blood was 40.8 mg. per cent.

Intra-urethral catheter drainage was instituted from January 3 through January 18. The patient did badly and had chills and temperature elevations throughout this period. Suprapubic cystostomy was done January 27, with improvement in the general condition, though not in the size or consistency of the prostate gland.

January 27 the patient was given 5 mg. of diethylstilbestrol (125,000 I. U.), and the same dosage was repeated on alternate days for six doses. Then 1 mg. of diethylstilbestrol dipropionate (20,000 I. U.) was given on alternate days for four doses. The total dosage was 810,000 I. U. and the duration of treatment 19 days. Two days after treatment had been begun the gland was boggy in consistency but was 20 per cent smaller. Three days later it was firm in consistency and 40 per cent smaller than when treatment had been begun.

February 17 the gland was enucleated by the suprapubic route. It weighed 65 gm., including a large median lobe. Histologic examination showed the usual hyperplasia in some areas. In other areas, however, small, undilated acini were lined by one or two layers of low epithelium; papillary projections into the acinar lumen were either small or absent. Other acini were widely dilated and formed large cystic spaces which were lined by extremely low, flat epithelium. In certain areas the smaller acini as well as occasional larger acini were lined by stratified epithelium; some of the cells showed hydropic degeneration. A few acini were filled with masses of desquamated hydropic epithelial cells, sometimes mixed with polymorphonuclear leukocytes. In isolated areas the fibromuscular stroma was edematous and the tissue spaces contained a few lymphocytes, macrophages and polymorphonuclear leukocytes. With these exceptions inflammatory processes were not prominent.

CASE NO. 4

J. A., a colored male, 60 years of age, was admitted to Charity Hospital January 28, 1940. His bladder trouble, which had existed for three years, had begun as a slowing of the stream, with decrease in size and force. The diurnal urinary index was 10-12 and the nocturnal 12-15. For two days before admission he had had complete retention of urine. The blood pressure was 205/110. Rectal examination showed the prostate to be rubbery, not tender, and about 10 x 10 cm.

The residual urine was 800 c.c. The urine showed a trace of albumin and 20 red blood cells and 5-8 white blood cells per high power field. The excretion of phenolsulphonphthalein January 30 was 15 per cent the first hour and 60 per cent the second (75 per cent for two hours); April 3 it was 40 per cent for the first hour and 15 per cent for the second hour (55 per cent for two hours). The non-protein nitrogen of the blood was 42 mg. per cent January 29, 36 mg. per cent January 31, 42 mg. per cent February 15, and 23 mg. per cent April 3. The Wassermann reaction was positive January 29 and March 16.

Catheter drainage was instituted January 28 and continued through March 7. During the course of treatment the patient developed epididymitis with chills and fever. When the catheter was removed he could not void. Suprapubic cystostomy was performed March 7, at which time the gland was unchanged in size and consistency.

Treatment with estrogens was begun March 8. Diethylstilbestrol dipropionate was given in 2 mg. doses (40,000 I. U.) every third day for six doses, then in 1 mg. doses every third day for six doses, making a total of 360,000 I. U. in 34 days.

Suprapubic prostatic enucleation was performed April 13. The gland, which had regressed to the size of a walnut, weighed 17 gm. Histologic examination showed the usual hyperplasia in a few areas. In most areas, however, the epithelial elements consisted of small, undilated acini lined by one or two layers of low epithelium or by stratified epithelium which encroached upon or completely filled the lumen. Many cells in the stratified layers showed marked hydropic degeneration. In one area the acini were small and many of them formed solid cell nests, which were distributed irregularly in the fibromuscular stroma. Some acini contained a few desquamated hydropic epithelial cells, and others were filled with masses of polymorphonuclear leukocytes. In some areas, particularly beneath the bladder mucosa, dense infiltrations of lymphocytes and polymorphonuclear leukocytes were seen.

COMMENT

We are making no attempt at this time to explain the action of these exogenous estrogenic substances on hyperplasia of the prostate gland. It is left to those more competent to judge to determine whether they act through the hypophysis, directly on the elaboration of androgenic substance by the gonads, by changing the androgen-estrogen balance in relation to prostatic hyperplasia, or directly on cell proliferation and cell changes. Of their effect, however, there seems no doubt, and the rapid changes in the size and consistency of the hyperplastic prostate gland following the administration of these potent estrogenic substances gives rise to speculation as to the possibility of a direct action, at least in part, on cell proliferation in this benign neoplastic condition.

SUMMARY AND CONCLUSIONS

1. Fourteen patients with hyperplasia of the prostate were treated with diethylstilbestrol and diethylstilbestrol dipropionate. Eleven patients were white and between the ages of 51 and 80 years. Three were colored and between the ages of 60 and 78 years. Five were ambulant and nine were observed in the hospital.

2. A decrease in the size of the hyperplastic prostate was observed per rectum in all patients, by cystoscopic examination in four, and at operation or autopsy in nine.

3. In seven cases in which the observations were possible the effect on the symptoms common to hyperplasia and on the residual urine was definitely beneficial. In three cases effects on spermatogenesis were noted.

4. Three patients died of other diseases during the period of observation. Postmortem examination revealed findings not unusual for subjects of their age and condition and absolved the estrogenic substances from any responsibility for their deaths.

5. Histologic study of excised specimens showed deviations from the usual findings in hyperplasia of the prostate, chiefly a reduction in the number of papillary infoldings, reduction in the height of the epithelium, vacuolization of the cytoplasm of the epithelium, decrease in the size of the acini, and stratification of the epithelium, with and without vacuolization of cells.

6. Although the number of observations is still small and treatment has been conducted for comparatively short periods, the following conclusions seem justified:

a. The administration of estrogenic substances produces definite changes in the glandular elements of the hyperplastic prostate.

b. Moderately enlarged glands regress to normal size and even atrophy, with complete relief of symptoms. Very large glands decrease in size, and, in an appreciable number of cases, return to normal size and weight.

c. Hyperplasia of the prostate gland can probably be controlled by adequate therapeutic and maintenance doses of potent estrogenic substances such as diethylstilbestrol and diethylstilbestrol dipropionate.

Note. Our thanks are due to Drs. J. R. Schenken and E. L. Burns for their examination of the pathologic material and for many helpful suggestions; to Drs. Eugene Vickery, Hilaire Ogden, Max M. Green, Gilbert Tomskey and George Vickery for their cooperation in this study; and to the Medical Research Department of the Winthrop Chemical Company which supplied the estrogenic substances used in this work.

REFERENCES

1. Lower, W. E and Johnston, R. L.: Further studies on experimental work on probable causes of prostatic hypertrophy, J. Urol., 26:599, 1931.

2. Salmon, U. J.: The effect of testosterone propionate on the genital tract of the immature female rat, Endocrinology, 23:779, 1938.

3. Heckel, N. J.: The influence of testosterone-propionate upon benign prostatic hypertrophy and spermatogenesis, Trans. Am. A. of G. U. Surgeons, 32:237, 1939. 1939.

4. Geist, S. H., Salmon, U. J., and Gaines, J. A.: The use of testosterone propionate in functional bleeding, Endocrinology, 23:784, 1938.

5. Kochakian, C. D.: Excretion and fate of androgens; concerning conversion of androgens to estrogens, Endocrinology, 23:463, 1938.

6. Deming, C L.; Jenkins, R. H., and Van Wagenen, G.: Effects of estrogenic hormone on urogenital tract of male macaque monkey, and upon gonorrheal urethritis in man, Trans. Am. A. of G. U. Surgeons, 29:485, 1936.

7. Dodds, E. C.; Lawson, W., and Noble, R L.: Biological effects of synthetic estrogenic substance, Lancet, 1:1389, 1938.

8. Editorial: A substitute for estrone? Lancet, 1:510, 1938.

9. Editorial: Artificial estrogens, Lancet, 2:686, 1938.

10. Editorial: A new synthetic estrogen, Brit. Med. J., 1:23, 1939.

11. Noble, R. L.: Effect of synthetic estrogenic substances on body-growth and endocrine organs of rat, Lancet, 2:192, 1938.

12 Mellish, C. H., Baer, A. J., and Macias, A C.: Experiments on the biological properties of stilbestrol and stilbestrol dipropionate, Endocrinology, 26:273, 1940.

13. Parkes, A. S.; Dodds, E. C., and Noble, R. L.: Interruption of early pregnancy by means of orally active estrogens. Brit. Med. J., 2:557, 1938.

14. Wugmeister, I.: Le traitement de l'hypertrophie de

la prostate par doses massives de folliculine, Paris méd. 1:535, 1937.

15. Deming, C. L., and Wolf, J. S.: Anatomical origin of benign prostatic enlargement, J. Urol., 42:566, 1939.

16. Barlow, O. W.: Laboratory data sheet, Winthrop Chemical Company.

17. Karnaky, K. J.: Clinical use of new synthetic estrogenic hormone, stilbestrol; preliminary report, South. Med. J., 32:8, 1939.

18. Winterton, W. R., and MacGregor, T. N.: Clinical observations with stilbestrol (diethylstilbestrol), Brit. Med. J, 1:10, 1939.

19. Loeser. A. A.: Therapeutic trials of diethyl-stilbestrol. Brit. Med. J., 1:13, 1939.

PULMONARY TUBERCULOSIS

A SYMPOSIUM*

PATHOLOGY AND PATHOGENESIS

EDWARD L. BURNS, M. D.†
New Orleans

The data concerning the pathology and pathogenesis of pulmonary tuberculosis which are summarized in this paper are collected only from the author's routine experiences in the postmortem room and from the experiences of others as they are recorded in the literature. They are not the result of a planned study of either postmortem or experimental tuberculous infection.

ETIOLOGY

There is ample confirmation of the role which the tubercle bacillus plays in the causation of pulmonary tuberculosis, although studies are still being conducted with regard to the types of the organism which are concerned. Such studies suggest that in this country the great majority of cases are due to infection with the human type of tubercle bacillus. Infections of the lungs, as well as of other tissues of the body, with the bovine type of tubercle bacilli are becoming increasingly rare, the reduction in incidence being directly related to the control of bovine tuberculosis. Infection of human beings with other types of tubercle bacilli probably never occurs, although cases suspected of being infected with the avian type of organism have been reported.

PATHOLOGIC CHANGES

Since many of the conclusions, as well as many of the controversies, in regard to the pathogenesis of pulmonary tuberculosis are based on postmortem observations, it might be well, before turning to the more complicated problem of pathogenesis, to consider the basic types of pulmonary lesions encountered at the postmortem table. Two general types are found. The first, commonly called primary tuberculosis, or childhood type tuberculosis, usually occurs in children and presumably represents the first contact of the human lung with tubercle bacilli. The second, commonly called the reinfection type or the adult type, presumably represents the second contact.

Many primary infections probably lead to minimal lesions which, upon healing, leave a small scar that is either lost in the lung tissue or is overlooked. More severe infections, however, produce a rounded or pyramidal-shaped caseous mass which may be found in any part of the lung but which is usually located close to the pleural surface in the middle part of the upper lobes or in the upper portion of the lower lobes. The lymph passages draining such foci characteristically show caseous foci along their paths, and the lymph nodes at the hilus of the lung are greatly enlarged and softened, and are filled with caseous material.

The course of these primary lesions is variable. Often they regress by becoming encapsulated and calcified, and remnants of them may be found years later in adult lungs examined roentgenologically or in the postmortem room. It is not unusual, however, for them to progress. In some instances the invasion of a pulmonary vein, with the discharge of large amounts of caseous material into the lumen, may lead to generalized miliary tuberculosis. In other instances the wall of a bronchus is eroded, frequently from an adjacent caseous lymph node at the hilus of the lung, so that tuberculous material is poured into the bronchial lumen, through which the contained bacilli are in turn distributed to the corresponding alveoli of the lung. Lobular areas of caseous pneumonia are thus produced, the softening of which, with discharge of the softened material into the lumina of the bronchi, may lead to cavitation.

---

*Read before the Orleans Parish Medical Society, May 27, 1940.

†From the Department of Pathology and Bacteriology, Louisiana State University, School of Medicine, and the Department of Pathology of Charity Hospital of Louisiana at New Orleans.

Such lesions are believed by almost all authorities to result from primary infection with tubercle bacilli during childhood. There is some dispute, however, as to the character of the lesions which result from primary infection after adult life is reached. Some authors believe that in both anatomy and clinical course such an infection is similar to that which occurs in children. Others believe that it may differ in either respect or in both. Although the question remains to be clarified, it seems certain that lesions are sometimes encountered in the lungs of adults which are indistinguishable from those occurring in children and which are the presumable result of a first encounter with tubercle bacilli.

The lesions in the reinfection type of tuberculosis differ somewhat from the primary lesions which have just been described. The most common lesion seen in adult life is a healed one which takes the form of a flattened, puckered scar usually located in the apex of the lung, just beneath the pleural surface; it is often associated with fibrous union of the two pleural surfaces. In most instances it extends only a short distance into the lung, is deeply colored with black pigment, and may show round, hard, gray tubercles in its substance. Small fibrous or calcified foci in the lymph nodes at the hilus of the lung are usually associated with these alterations in the lung tissue. Although the idea is supported by no direct observation on pathologic material, it seems possible that such an apical lesion, during the active stage of its development, may be responsible for some of the tuberculous pleural effusions frequently seen in young adults in whom no parenchymatous lesion of tuberculosis is demonstrable by roentgenologic studies.

The earliest active lesions of the reinfection type are not usually located at the true summit of the lung but are found in the infraclavicular region 1 cm. or more below the apex. The reason for the difference in position of healed and active lesions is obscure. Some investigators maintain that the active lesions are the result of a spread of infection from initial foci in the apex.

Whatever the mechanism of localization, the first noticeable active lesion of the reinfection type takes the form of a small cavity, which usually communicates with a bronchus. From its starting point in the upper lobe the infection may then follow several paths. Sometimes the cavity becomes surrounded with fibrous tissue and the advance of the infection is halted. In such cases the cavities may become obliterated, or, less often, the interior may become lined by bronchial epithelium.

Other lesions continue to enlarge, the rate of advance depending upon various factors which will be discussed later. If the advance is slow, the zone about the infected area becomes extensively scarred and deeply pigmented; tubercles and areas of caseation are distributed rather sparsely through the scarred tissue. Excavations occur by caseation and softening of tissue in the margin of the cavity, and in the course of months or years cavities of this kind may enlarge until they sometimes occupy entire lobes of the lungs. Encapsulated tubercles surrounded by zones of scarred lung tissue are often found in the lower lobes of both lungs. The pleural surfaces are frequently bound closely together by dense fibrous adhesions which extend over the upper lobes in particular but which sometimes encase the entire lung. Although the lung tissue may be widely and extensively destroyed, the degree of involvement of the lymph nodes at the hilus is relatively slight. Scarring and a few small caseous tubercles are commonly found in these nodes, but as a rule there is no massive enlargement such as is seen in the primary type of tuberculosis.

When little resistance is offered to the growth of the tubercle bacilli, the cavity enlarges rapidly and the wall becomes lined by soft, yellowish gray, caseous material in which tubercle bacilli are numerous. Only slight attempts are made to wall off the infected areas by connective tissue. Soft caseous masses, which originate from the walls of cavities and which contain many tubercle bacilli, are discharged into the bronchial tree, through which they are disseminated to other parts of the lung, especially to the lower lobes. Wherever these bacilli lodge, areas of caseous bronchopneumonia tend to develop. Such areas may be small, or they may be large and confluent. Occasionally the dissemination occurs through a large bronchus and an entire lobe becomes consolidated, with the production of a caseous lobar pneumonia. Rapid softening in the affected pneumonic areas, with a discharge of the softened material through bronchi to the outside, may lead to rapid and extensive destruction of lung tissue. Even in rapidly progressing cases, however, involvement of the lymph nodes is not striking and they seldom show the extensive enlargement and caseation seen in the primary type of infection.

The pathologic lesions of the primary and the reinfection types of pulmonary tuberculosis thus differ from each other in several respects. In the primary type the disease tends to produce its first lesions in the middle or lower portions of the lung. In the reinfection type the lesion tends to originate in the upper portions. In the primary type the tubercule bacilli spread in large numbers to the lymph nodes, at the hilus of the lung, where they cause massive enlargement and caseous necrosis. In the reinfection type they do not readily spread to the lymph nodes, which therefore are not greatly enlarged and do not present marked caseous necrosis. Around the explanation of these differences are built many of the present concepts and controversies concerning the pathogenesis of pulmonary tuberculosis.

PORTAL OF ENTRY

Although lymphatic and hematogenous routes have been suggested as portals of entry for the tubercle bacilli, considerable evidence points to the fact that in primary infection, at least, the organisms are drawn into the lungs through the air passages. In the reinfection type differences of opinion are greater as to how they arrive at the sites they infect.

Reinfection tuberculosis occurs in persons who have previously been infected with tubercle bacilli and who therefore may be harboring the organisms in their bodies. For this reason it would not be illogical to believe that the reinfection type of tuberculosis could originate from continued or renewed growth of the organisms already present within the body. Such a concept would be easy to accept were it not for the fact that tuberculosis of the reinfection type selects a new and distant location, a site near the apex of the lung, for its point of origin. Some investigators believe that primary foci, especially those lesions located in the lymph nodes, become active under the various stresses of adult life and that, as a result, endogenous blood or lymphatic spread occurs to the new foci in the upper lobes of the lung. Other workers take the position that the second infection is not related to the earlier infection but results, instead, from inhalation of bacilli from exogenous sources. A compromise view is that bacilli are inhaled into the lungs from outside sources, and, although incapable of producing infection themselves, are able to cause reactivation of old primary lesions. Bacilli are thus released from the old foci and are carried by the blood or lymph streams to the site of reinfection in the apex of the lung. All these views are supported by reasonably sound evidence at the present time, and it seems possible that under varying circumstances reinfection may be accomplished by any of the methods described.

LOCALIZATION OF THE LESION

The site of the lesions in the primary type of tuberculosis is not difficult to understand. Localization in the middle and lower portions of the lung is quite compatible with the behavior of other small particles inhaled into the lungs, as, for example, silica dust. On the other hand, no adequate explanation has ever been advanced for the localization of reinfection tuberculosis in the apical region of the lung. Differences in the distribution of bronchi and blood supply, and various theories concerning the mobility of the upper portion of the lung, with resulting hypoventilation or hyperventilation, have been suggested as explanations, but none of them is fully acceptable.

FACTORS INFLUENCING THE COURSE OF INFECTION

Since almost every person at some time or other in his life is infected with tubercle bacilli, a study of the factors which lead to progression or healing of the resulting pulmonary lesions is of great importance. Immunity and allergy, dosage, and virulence are some of the factors which have been studied in this regard.

Immunity and Allergy. Several types of immunity appear to be at work in pulmonary tuberculosis. Theories of racial immunity have arisen from the fact that different races apparently possess a different resistance to the disease. Tuberculosis in the colored races, which is associated with a much higher mortality than in the white races, is often used to illustrate lack of racial immunity. Authorities who maintain that the difference in the mortality rates is due to an hereditary susceptibility of negroes to tuberculosis cite the numerous instances in which the disease becomes disseminated through blood or lymph channels, the great tendency for the development of caseous bronchopneumonia, and the relative lack of fibrous tissue proliferation about the pulmonary lesions in this race. On the other hand, these apparent differences in racial susceptibility have also been attributed to differences in modes of living, it being generally conceded that the crowded, unhygienic conditions under which the negro race often lives permit heavier as well as more frequent infections with tubercle bacilli. The investigators who adduce these facts maintain that when environmental conditions are comparable, there is little difference in the susceptibility of the white and colored races. Sound arguments have been advanced on both sides of the question, and it seems likely that the truth lies somewhere in the middle, and that actually both environmental and hereditary factors explain the different manifestations of tuberculosis in the negro and white races.

More and more evidence is accumulating to suggest that individuals living in the same environment and with essentially the same hereditary background show varying degrees of resistance to tuberculous infection. The mechanism of resistance is poorly understood, and the differences are often attributed to differences in the broad group of characteristics classified as constitutional factors. Examples of such individual resistance are seen in both experimental animals and human subjects. Experiments with pure strains of animals have demonstrated individual variations in susceptibility to tuberculous infection, even though the dose and virulence of the organisms, as well as the environmental conditions, were rigidly controlled. Tuberculosis often develops in less than half the members of a large family, although all the individuals in it are exposed heavily, and presumably more or less uniformly, by a diseased parent. Such factors undoubtedly play a role in the pathogenesis of tuberculosis in human beings, but their evaluation is difficult because of the many accessory factors, such as nutritional and mental states, age, fatigue, and other environmental conditions which are also influential in modifying susceptibility.

The acquired immunity which develops in response to tuberculous infection can be well demonstrated in appropriate experimental animals (for example, the guinea pig), which have recovered following a small immunizing dose of tubercle bacilli. Such animals, instead of developing the generalized, fatal tuberculosis which usually follows the first dose, present the following reactions to a second injection: (1) An accelerated and intense inflammatory reaction at the site of this injection, the inflammatory reaction often being so severe as to produce ulceration; (2) localization of the bacilli to the site at which they were injected, with little or no spread to the regional lymph nodes; (3) a tendency toward less rapid progression of the lesion; (4) complete healing of the lesion in many cases.

Similar factors are thought to be at work in the reinfection type of human tuberculosis and to account for: (1 The tendency of the lesion to remain localized in the lung tissue, with only a minimal spread to neighboring lymph nodes; (2) progression of the lesions by caseation, softening and excavation, and by spread of bacilli through the bronchial tree; (3) the healing of lesions by resolution or fibrosis.

Under these circumstances, however, the presence of immunity is associated with the development, in most cases, of hypersensitivity to tuberculous protein, as evidenced by accelerated and intense inflammatory reactions to reinfection or reinoculation. Such reactions are not seen when the bacilli are first introduced into human or animal tissues. The relation of this allergic state to immunity has been the subject of considerable controversy. Some workers maintain that the hypersensitive state is the mechanism by which the body resists the growth of tubercle bacilli. On the other hand, it has been shown that desensitization can be achieved in tuberculous animals without a concomitant loss of resistance. Another group of investigators, who maintain that the allergic state is responsible for the destructive lesions in pulmonary tuberculosis, assert that allergy is not only unrelated to immunity but that actually it has a harmful effect in the course of tuberculous infection. No final conclusions can be drawn at this time, but it would seem that allergy is sometimes distinctly harmful during the course of tuberculous infection, while at other times it is not the decisive factor. There seems no doubt, however, that under many circumstances healing can take place in the presence of a high degree of sensitivity.

Dosage. The entirely logical conclusion that massive doses of tubercle bacilli are capable of producing more severe disease than smaller doses is subscribed to by almost all students of tuberculosis. These conclusions are amply borne out by experimental evidence, which makes it clear that the number of bacilli administered plays an important role in the severity of the resulting disease. Moreover, when bacilli arrive in the tissue in clumps rather than as single organisms, a more severe and necrotizing reaction is produced. That these principles which operate in experimental animals are also operative in human tuberculosis is accepted by most authorities.

Virulence. The factor of the virulence of tubercle bacilli is primarily concerned with the ability of the micro-organism to adapt itself to and grow in the tissues of the host. This ability varies with different types of tubercle bacilli; some can grow in the tissues of some animals but not in the tissues of others. The human type of tubercle bacillus, for instance, is able to infect human beings and guinea pigs, but not rabbits, whereas the bovine type of organism can infect all three species. Virulence may also vary from strain to strain in organisms of the same type. Strain H37, for instance, is capable of producing fatal disease in guinea pigs, whereas strain R1 in comparable doses cannot in most instances produce progressive lesions. These observations indicate that the organisms which reach the human lung vary considerably in their ability to produce serious infection and that, as in any other infectious disease, the severity of the disease is dependent, at least in some degree, upon the virulence of the bacillus concerned.

SUMMARY

From this brief summary it may be seen that the course of human pulmonary infection with tubercle bacilli is a complex, mobile and ever changing process. In many cases trivial scars are produced and the course of the infection is not marked by either physical or symptomatic events. In other cases the infection progresses and the outcome depends upon a constantly changing interplay of such factors as natural or acquired immunity, the allergic state, and the dosage and virulence of the organisms. The outcome may even depend upon such elements of chance as whether the initial focus involves the wall of a vein, a bronchus or an artery, or the surface of a pleural cavity. The study and further solution of fundamental problems such as these will contribute considerably to our better understanding of this very formidable disease.

EARLY DIAGNOSIS FROM THE STANDPOINT OF THE PEDIATRICIAN

EMILE NAEF, M. D.†
NEW ORLEANS

From the standpoint of the pediatrician the early diagnosis of tuberculosis is made in the first infection phase of the disease when symptoms are vague and physical signs appear meager or entirely absent. A history of exposure to an open case of tuberculosis in the immediate family is sometimes the opening wedge for investigation of possible infection in the child, though far too often the reverse of this situation is true and initial discovery of the disease in the infant or child leads to the disclosure of the source of the child's infection in a parent or other close relative or a domestic. The rarity of congenital tuberculosis and the rapidity of its acute course during the first few weeks of life preclude considering the infection in the light of any but its acquired forms, and search for the exposure must be immediately instituted as a therapeutic measure. If any suspicion of tuberculosis exists in prospective parents, tuberculin-testing should be performed immediately with x-raying of all positive reactors to determine the stage of infection. If a definite history of previous adult tuberculosis in either one of a contracting couple is obtained, conception should not be sanctioned until full investigation and proof of latency of the disease in the infected member has been established.

The tuberculin test is the most valuable diagnostic measure in the detection of first infection tuberculosis, since only one-fourth of all children with first infection tuberculosis manifest either clinical or roentgenologic evidence of the disease, and the diagnosis is established by the positive appearance of the tuberculin test.

TUBERCULIN TESTING

Of the many forms of tuberculin testing, the Mantoux intradermal test and the von Pirquet epidermal test are the two most generally used, the Mantoux test having almost completely superseded the von Pirquet. The percutaneous test of Moro, where a concentrated tuberculin ointment is rubbed into the skin, has been modified by Wolff,[1] who merely applies a drop of tuberculin ointment to the skin and covers directly with a strip of adhesive, a reading being made at the end of 48 hours. In 1937, Vollmer and Goldberger[2] reported use of a tuberculin patch test, consisting of a strip of adhesive tape on which a square of filter paper saturated with undiluted tuberculin has been placed. This is applied directly to the skin and a reading is made at the end of 72 hours. This test has several commendable points, chief among which are economy of time and material, and absence of pain on the part of the patient, so that no psychic obstacle to further testing is built up. However, the extreme simplicity of the test militates against its usefulness, since the great ease of application will invite nurses and possibly schoolteachers to attempt the test and many first infection cases will be missed through questionable technic and interpretation. The intradermal Mantoux test in a dosage of 0.1 c.c. of the usual 1 to 1,000 dilution is still the standard gauge of effectiveness of all other tests, and thereby admittedly the most dependable. Care must be exercised that introduction of the testing solution is made entirely intradermally and that the solution used is of proper freshness and correct dilution. A positive test is recognized by its palpable central induration and edema surrounded by a peripheral zone of erythema. Presence of mere redness with no central edema in the reaction does not constitute a positive, since tuberculo-protein sensitivity is evidenced by induration and edema.

A period of three to seven weeks after tissue implantation of infective material is required before tuberculoprotein sensitivity develops and the Mantoux test becomes positive. This period of invasion is known as the preallergic phase of the infection and is entirely symptom-free. The test should not be attempted in the presence of any hyperpyrexic state, since a false negative may result.

---

†From the Department of Pediatrics, School of Medicine, Tulane University of Louisiana.

The Mantoux test is a fixed allergic reaction and once positive, remains positive as long as living tubercle bacilli are present in any focus of infection within the body. The test does not register the virulence of the invading organisms or the extent of tissue involvement. Once the test is found positive in a child, it is neither necessary nor desirable to continue repetition of the test. The older the child, the greater the likelihood of a positive reaction, though the socio-economic level and the environmental habitus of the patient are more accurate indices of expected positive reactors than the mere age of the individual. To put the problem simply, the earlier and more continuously an infant or child is exposed to open adult tuberculosis, the earlier the individual will became sensitized to tuberculoprotein and the higher the incidence of positive tuberculin tests. Hence the necessity for early and repeated tuberculin-testing of all children beginning at one year or earlier in suspected families or environments. Ch'iu, Myers and Stewart[3] in a 10 year follow-up of 446 children with positive reactions and 772 negatively reacting children, found 15 per cent of the early positive reactors with reinfection or adult tuberculosis, and only 1.6 per cent of the early negative reactors had developed reinfection type tuberculosis after a lapse of ten years. These impressive findings emphasize the necessity for continuous avoidance of any exposure of the infant or child to open tuberculosis, the best proof of which is a persistently negative Mantoux test. Considering the importance of the factor of exposure, Armand-Delille has shown that "50 per cent or more infants living in contact with tuberculous parents will become tuberculous by the beginning of the second year of life."

X-RAY

Since 95 per cent of all first infection tuberculosis involves the lungs and tracheobronchial nodes, an x-ray of the chest is made routinely after discovery of a positive Mantoux test to determine the stage of the tuberculous process in the lungs and hilar region. In the reading of lung films, influenzal effects on tracheobronchial nodes must be considered, also the prolonged hilar enlargement following any acute pneumonic process.

An evaluation of the x-ray as a diagnostic aid was made by Hetherington[4] et al. who found pulmonary lesions demonstrable by x-ray in 5 per cent of positive tuberculin reactors at five years of age, in 11 per cent of positive reactors at 10 years and in 22 per cent of positive reactors at 15 years. The limitations of the x-ray, according to Miller,[5] are explained partly by the presence of the overlying "structures of varying density, the factor of cardiac and intrapulmonary vascular movement, and the minute size of many of the calcium deposits." Sweany[6] reports a total handicap of 80 per cent in x-ray examination for the detection of pulmonary lesions of primary tuberculous infection. Serial x-rays are valuable in patients presenting suggestive symptoms.

After the primary complex of tuberculous infection has been completed, the x-ray evidence of the infection may be so entirely lacking that comparison with the earlier films of the series is the only proof of pathology, while fibrosis or calcification of the original zone of involvement or residual calcification of hilar nodes may be the late evidence of primary tuberculous involvement. When reinfection tuberculosis from an exogenous or endogenous source develops, the x-ray is valuable and pathologic changes in the lungs will be more frequently and more definitely recorded.

Discovery of the tubercle bacillus as a diagnostic aid is very difficult in the infant and young child, the obtaining of satisfactory sputum being impractical. Routine stomach washings with centrifuging of the entire stomach contents and isolation of the bacilli have proved satisfactory with many workers in tuberculosis, though the patient with a primary infection is throwing off so few tubercle bacilli that recovery of the organisms even by this more through method is not uniformly successful.

SYMPTOMS

The symptoms of first infection tuberculosis are either entirely absent or so mild that the average parent completely overlooks them. Symptoms, when present, are usually seen at the end of the preallergic phase, when sensitivity is developing and the tuberculin test first becomes positive. There may be declining appetite or complete anorexia; sometimes a definite change of disposition attracts attention, while a slump in school work is noted; vomiting before or during school hours may occur with no apparent reason; cough, if present, is dry, hacking, and non-productive, usually reflex in origin because of irritation of nerve trunks by hypertrophied tracheobronchial nodes. Slight afternoon elevation of temperature may be present, with or without an associated fatigue and irritability. Profuse sweating, either when awake or asleep, is frequently seen. The patient's weight tends to remain stationary or a gradual loss of weight may occur.

PHYSICAL EXAMINATION

Physical examination is of little value in the positive diagnosis of first infection tuberculosis. Other than a varying degree of secondary anemia with its associated generalized lymphadenopathy and a possibly diminished tissue turgor, the examination is negative. The chest may be the suboxygenation type or it may present normal contours and expansion. Certainly examination of the lungs will reveal nothing abnormal. If the usual routine of clinical examination discloses any positive lung findings, the first infection phase has already passed and the more severe reinfection type of adult tuberculosis is present.

The extrapulmonary first infection lesions which constitute 5 per cent of primary tuberculosis in childhood include the intestinal primary complex and the upper respiratory route of invasion. Residuals of the intestinal avenue of infection are found in the mesenteric lymph nodes where calcification is often sufficiently complete to be visualized by x-ray. Both lateral and anteroposterior films are made to demonstrate nodes which might be anterior to the vertebral column.

Primary infection via the upper respiratory route may be the result of ingestion or inhalation of infective material, in which case the tonsils are frequently the focus of initial involvement with the cervical lymph nodes presenting the residual calcification. In this form of first infection tuberculosis the nutritional state of the patient is usually excellent, and differentiation of tuberculous cervical adenitis from ordinary infectious adenitis is made by the Mantoux test with possible x-ray discovery of calcification of the nodes.

SUMMARY

Early diagnosis of first infection tuberculosis is established by routine Mantoux testing with an x-ray check of all possible foci of active infection in the event of a positive test. Care must be exercised in the proper technic of the tuberculin test, and rechecking of the test should be done annually in all previously negative children. Because of overcrowded living conditions and economic factors in general hygiene, the underprivileged child seen in outpatient clinics should have a tuberculin test every six months, so that discovery of the source of the infection may be made sufficiently early to allow the child's first infection to remain benign, thereby minimizing the possibility of development of reinfection adult type tuberculosis from an exogenous source. Prevention of exposure of the individual to open tuberculosis is one of the most conservative and vital measures of modern medicine and every possible step in the consummation of this ideal should be part of the health insurance of every child.

REFERENCES

1. Wolff, Ernst: A tape test with tuberculin ointment, Am. Rev. Tuberc., 27:308, 1933.
2. Vollmer, H., and Goldberger, Esther: New tuberculin patch test, Am. J. Dis. Child., 54:1019, 1937.
3. Ch'iu, P.T.Y., Myers, J. A., and Stewart C. A.: Fate of children with pulmonary tuberculosis, J.A.M.A., 112:1306, 1939.
4. Hetherington, H. W., McPhedran, F. M., Landis, H. R. M., and Opie, E. L.: A survey to determine the prevalence of tuberculous infection in school children, Am. Rev. Tuberc., 20:421, 1929.
5. Miller, G. R.: The recognition of thoracic calcification, Am. J. Roentgen. & Rad. Therapy, 26:191, 1931.
6. Sweany, Henry C: Studies on the pathogenesis of primary tuberculous infection, Am. Rev. Tuberc., 27:559, 1933.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

MORELL W. MILLER, M. D.†
NEW ORLEANS

The problem of tuberculosis is quite complex. It is a frequent disease, an infectious disease and an essentially chronic disease. Its social and economic implications are ofttimes of such a nature that they overshadow in complexity and importance the purely medical aspects of the disease. Because it is frequent, so frequent still, that it is the most important cause of death in early adult life, it deserves the fullest attention of all agencies concerned, first of which stands the private physician.[5]

The adult or reinfection type of disease presents itself in its least infectious role in the early stages of the malady. Orthodoxically, the disease processes are accordingly more vulnerable to therapy in their incipiency than later, when caseation and ulceration have destroyed lung tissue with direct impairment of the function of that organ; as well as damage to more remote structures by the circulation through the various channels of noxious tuberculo-protein materials which combine to lessen the chances for recovery of the infected individual.

The essential chronicity of the disease with its elbaoration of toxins gives rise to symptoms not unlike those of focal infection elsewhere in the body. The chronically diseased tonsil or the abscessed tooth may evoke a symptom complex similar to that of the tuberculous nodule at the hilus of the lung. The symptoms elaborated are of such a protean nature and varied pattern as to tax the diagnostic acumen of the most experienced clinician.

The diagnosis of tuberculosis is made by no trick of légèrdemain nor by any royal short cut. The final conclusion must be based on the proper evaluation and interpretation of the various bits of information gleaned by the investigator from the examination of the patient. In this process of reasoning, all possible aids must be considered and used. With the improvement in technical adjuncts and a broadening of vision in their use, the clinician today has at his disposal a far greater advantage than did his predecessor of but a few years ago. Not infrequently the diagnosis is of a negative character; the disease is tuberculosis because it is not some one or other of like symptom-producing entities. With the advent of our modern diagnostic adjuncts physicians are liable to experience a sense of security which results in a tendency to lower the acuity with which the various bits of information are sought for. Now, as then, all details are of value.[3]

ETIOLOGIC FACTORS

The inquiring practitioner finds no particular age group the exclusive harbinger of the disease, albeit the highest infection rate is present at puberty, and the incidence remains higher through the two subsequent decades of life. At puberty he may examine with more suspicion the boy than the girl, although the sexes contribute to the disease their quota alike. Pregnancy and the puerperium offset in the female the environmental factors of exposure, trauma and the like in male. One well may ponder on the presence of tuberculosis in the athlete where physical strain and over-exertion seem to rob him of the necessary attributes to combat successfully the disease. Worry and mental strain add to tuberculosis their complement of victims as indeed they do to many other of the ills of which the human flesh is heir. At the termination of exhaustive diseases or even many of the apparently minor intercurrent infections, unless one is particularly alert, he ofttimes finds tuberculosis already present and no longer in its minimal stage. Among certain of the vitamin deficiencies, one may expect to find tuberculosis. Bad housing and the inhalation of irritant gasses and dusts are factors which tend to decrease the individual resistance to the disease. Drolet believes that specific racial immunity does exist, but given equal environmental factors the incidence of infection is practically the same. It is the mortality that varies in the different races. Nonetheless, in this vicinity one had best with double vigilance regard the negro patient as a likely source of infection.

---

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana.

IMPORTANCE OF HISTORY

With this knowledge that one may find tuberculosis in no specific group of individuals and must everywhere be on the alert if he intends to find it, the clinician first directs his attention to the history of his patient. Early tuberculosis rightfully has been said to be a disease of symptoms and not of signs. A careful and painstaking history is of paramount importance in the recognition of early tuberculosis and bountifully rewards the physician for his additional time and extra care in the discovery of that early case, where had not this extra effort been spent in careful questioning, the patient might have been doomed to years of invalidism, if not death.

Not infrequently an individual who is numbered among a group in which a tuberculosis case-finding survey has been made, reports to his private physician the finding of a positive tuberculin test. This finding should not, as is too often the case, be overlooked. As private physicians, we should bend every effort to acquaint him with the significance of such reaction and such reactor becoming at some later date a case of active pulmonary tuberculosis.

The history of sustained contact with a consumptive, whether or not the individual be a relative, should be sufficient to put into action the machinery with which the diagnosis of tuberculosis is made.

SYMPTOMS

The symptoms of the disease vary within the widest limits, dependent largely upon the dosage of organisms. When the dosage is large the onset is apt to be acute, with a very toxic picture simulating the acute respiratory infection. If the dosage is small the onset may be insidious, and symptoms are hardly recognizable and frequently are overlooked by both the patient and the doctor.

No single symptom or combination of symptoms is constant in early tuberculosis. General malaise, that indefinable something which makes the patient know that he is ailing, the lact of zest for the ordinary affairs of life in which he regularly gains much enjoyment, is perhaps the most frequent.

Fatigability, often met with early in the disease is described by the patient as a worn out feeling at the end of the ordinary day's labor; or inability to complete, for lack of strength, a task formerly insignificant in nature. Fever, frequently present in late afternoon, more than likely is not suspected by the patient. The wise clinician takes advantage of a daily temperature chart to aid in his diagnosis. The slight febrile rise to 99.2° F. or 99.4° F. in late afternoon is highly suggestive of the disease. Premenstrual elevation of temperature occurs early and remains late in the course of pulmonary tuberculosis. Gastric disturbances of various sorts are often complained of. The derangement of function give rise to anorexia and loss of weight, as the disease progresses. Quite often indeed the patient consults the practitioner because of his digestion rather than symptoms suggestive of pathology in his lungs.

Hoarseness, fogging and tickling in the larynx are also frequent complaints. Hoarseness is apt to subside rapidly only to reappear after a short period of time. Tickling in the larynx sometimes causes a dry hacking cough.

In the female changes of the menstrual rhythm, in particular scanty menstruation or even complete amenorrhea, are apt to usher in pulmonary tuberculosis.

The sudden appearance of a pleural effusion is very suggestive of tuberculosis. The involvement of the pleura is secondary to disease of the lungs. The association of pulmonary tuberculosis with this phenomenon is so well established as to have been included by the late Lawrason Brown in his cardinal diagnostic criteria. It is almost pathognomonic of the disease.

Recent advances in proctology have established that tuberculosis plays only a small role in the etiology of fistula in ano. The mere existence, however, of this lesion should suggest pulmonary tuberculosis to the wary clinician since the two diseases have coexisted in as much as 40 per cent of a recently concluded series.

The persistent "cold", although more frequently than not the result of chronic suppurative upper respiratory disease, deserves careful consideration before being passed off as of no significance.

Hemoptysis of a drachm or more of blood from a source not otherwise explained, must be considered significant of tuberculosis. The *modus operandi* of these hemorrhages in early tuberculosis arises from the close proximity of the minute lesions with the vascular network accompanying the lesser divisions of the bronchial tree.

As with fistula in ano, spontaneous pneumothorax, which in itself is varied of origin, should put on his guard the physician who is confronted with it as likely being of a tuberculous nature; this especially in young individuals. Less frequently enumerated among the symptoms of early tuberculosis are the night sweats which later in the disease are ofttimes prevalent and quite exhausting. Shoulder and chest pains, flushing of the face, pleural pains and expectoration put in their appearance, as a rule, when the disease is already well established.[6] Productive expectoration is not always present in pulmonary tuberculosis and especially in its early stages. In this connection examination of gastric washings for tubercle bacilli has been productive of positive diagnosis in the absence of positive sputum examination.

PHYSICAL EXAMINATION

To establish the diagnosis of pulmonary tuberculosis the clinician next proceeds with the physical examination. Unhappily a most careful examination of the chest may elicit no abnormal findings in the presence of definite pathology within the chest. Physical signs are noted only when the pathology is close to the surface of the lung and is of a nature that can be detected by the examination. It can not be too strongly emphasized that a negative physical examination should not rule out a tuberculous infection.[4]

The most important physical signs resulting from tuberculous infection of the lungs are noted on auscultation. It follows that to determine abnormalities on physical examination one must be thoroughly familiar with the normal and with the endless chain of variations in the norm itself.

Of greatest value to the average physician is the presence of rales; depending upon the classification, these rales are variously designated as medium coarse rales or moist mucus rales. Most frequently they are noted over the apices, posteriorly along the danger line, anteriorly immediately beneath the clavicle, and laterally high in the axilla. When rales are heard with quiet normal breathing the disease process is likely already to be moderately well advanced. Not infrequently if rales are not heard by quiet breathing, "latent rales" may be elicited by having the patient breathe deeply, exhale, cough and take a deep inspiration. If present, the rales will be heard on the deep inspiration. Of more frequent occurrence in early tuberculosis is the change from vesicular to bronchovesicular breath sounds in the apices. This finding is particularly hard to evaluate in certain individuals. In the right apex anteriorly, broncho-vesicular breathing normally occurs to a variable degree in all individuals. Depending upon the physical makeup and the position of the trachea, it is difficult to determine its presence or absence in the left apex of some healthy individuals.

Percussion is important as an aid in the diagnosis of minimal tuberculous lesions. The lesions at times make their presence known by impairment of the normal resonant note. Again one must keep in mind the normal variations of the upper lobes and properly evaluate changes in thoracic contour, the muscular development and state of nutrition of the patient.

Palpation and inspection add little more than confirmatory evidence in singling out the disease in its incipient stages in the lungs.

X-RAY EXAMINATION

When the physician has completed his history and physical examination he turns to the x-ray or fluoroscope for further investigation of suspicious leads obtained from the history, or for confirmation of abnormalities detected on physical examination. The roentgenogram is the most important link in the chain of evidence which leads to the diagnosis of pulmonary tuberculosis. When proper technic is used the x-ray rarely fails to demonstrate the disease in the lungs, and when errors do occur they can generally be laid at the door of faulty interpretation. It is not within the scope of this paper to elaborate upon technic or interpretation in roentgenography, but it may be said in passing that failure to get the patient to the x-ray sufficiently early is a primary cause of delay in diagnosis. This has been established by Monte and Blitz[2] in their survey of cases at the Charity Hospital at New Orleans. Fellows,[1] in his case-finding program in the Metropolitan Life Insurance Company, has demonstrated the value of fluoroscopic examination as a method of early diagnosis. It has the factor of cost in its favor, and the time-saving factor is significant as well in the handling of large groups of patients. It cannot replace the roentgenogram in the routine practice of the private physician.

LABORATORY EXAMINATIONS

To weld the final bit of evidence into an unyielding chain of fact the tubercle bacillus is sought for in the sputum or in the gastric lavage. Direct smears, concentrates and cultures are the usual routine of procedure. Repeated negative examinations for tubercle bacilli should not rule out the diagnosis of tuberculosis. Animal inoculation frequently is fruitful of a positive diagnosis where other methods fail.

SUMMARY

It is seen that the diagnosis of tuberculosis is dependent upon more than any one examination. Frequently all methods of approach must be used to make the diagnosis of pulmonary tuberculosis. The history may supply the lead, and the physical examination is of value when the findings are positive. The x-ray supplies important confirmative evidence, and the finding of tubercle bacilli in the sputum supplies an irrefutable conclusion to the story. To avoid the misfortune of a missed early diagnosis, the physician needs in addition a certain awareness to the possibility of the presence of the disease, and must be constantly on the alert to direct properly his determination through the maze of conflicting possibilities in order to establish the diagnosis.

REFERENCES

1. Fellows, Harold Haynes: Value of the fluoroscope in pulmonary tuberculosis case finding, Am. J. Public Health, 25:109, 1935.
2. Monte, L. A., and Blitz, O.: Factors delaying the diagnosis of pulmonary tuberculosis, New Orleans M. & S. J., 90:468, 1938.
3. Ornstein, George G., and Ulmar, David: Clinical Tuberculosis, F. A. Davis, Philadelphia, 1935.
4. Ornstein, George G., and Ulmar, David; Ibid, F. A. Davis, Philadelphia, 1935.
5. Pinner, Max: The role of the general practitioner in pulmonary tuberculosis, Dis. of Chest, 6:71, 1940.
6. Pottenger, Francis Marion: Clinical Tuberculosis, C. V. Mosby Co., St. Louis, 1922.

STUDIES WITH ANTIGENS

V. ANALYSIS OF COMPARATIVE SKIN REACTIONS BY MEANS OF THE CHI-SQUARE STATISTIC*†

M. R. PABST, M. A.
C. H. BOATNER, PH. D.
AND
B. G. EFRON, M. D.
NEW ORLEANS

INTRODUCTION

Dorfman and Efron[1,2] have shown that the curve of skin reaction sizes from serial dilutions of an extract is discontinuous. They have demonstrated that, in a given subject, a skin reaction of given size can be produced by varying concentrations of the same extract; hence, equal sized skin reactions may occur from extracts which differ widely in potency. They have also shown that there is no inherent difference between the radial and ulnar sides of the skin of the forearm.

Skin reaction sizes cannot be expressed

---

*Read before the Texas Allergy Association, Dallas, Texas, May 13, 1940.

†From the Department of Chemistry, Newcomb College, Tulane University, and the Division of Allergy, Touro Infirmary, New Orleans.

quantitatively and must be grouped in descriptive categories. There is no known method of measuring skin reaction sizes with precision, because skin reactions to allergens are three-dimensional, whereas any practical, reasonably adequate measuring technic is at best two-dimensional. The best estimation of comparative skin reaction sizes is that which is least exacting and therefore least subject to error. The least exacting characterization of a pair of reactions is whether one is larger or smaller than the other, or whether the reactions are equal in size.

The technic used in this study of comparative skin reactions is based solely upon comparison of the reaction sizes in pairs of tests. The arbitrary classification by degree of reaction, as, for example, marked, moderate, is included in this study only because it is a method usually employed in classifying skin reactions. We will show that the equal, larger or smaller designation of skin reactions gives all the information that is statistically significant for their comparison.

TEST METHOD

We have modified slightly our original technic. Instead of attempting to make equal sized parallel scratches with a needle, we used a small scarifier, with a blade 1/16 of an inch wide. Scratches were made by a single twist of the scarifier and were placed at least an inch and a half apart in parallel rows along the vertical axis of the forearm, one row on the ulnar side of the arm and the other on the radial side.

The tests were performed with serial dilutions, and identical dilutions were always placed on parallel scratches at the same level of the forearm. All tests were made and read by the same person (B. G. E.). The reactions, read at the end of twenty minutes, were examined by pairs, and the size of each reaction on the radial side of the forearm compared to that of the corresponding reaction on the ulnar side. This comparison determined whether the two reactions were equal in size or whether one was larger than the other. Only after this estimate was made, were the reactions classified also as to the degree of reaction.

The classifications of degree of reaction were recorded as marked plus, marked moderate, moderate, slight, doubtful, and negative. Since there can be no difference in size when reactions are negative, readings were discontinued at the dilutions at which both of a parallel pair of tests were estimated as negative.

APPLICATION OF THE CHI-SQUARE STATISTIC[3]

A. Extracts of the same potency. Table I presents the observations on 501 comparative skin reactions which were made on 40 house-dust-sensitive patients with serial dilutions of the same extract.* In 326 comparative tests, the parallel reactions were

TABLE I

Case number	Reactions equal size	Ulnar reactions larger	Radial reactions larger
1.	11	5	0
2.	9	3	4
3.	8	6	2
4.	12	2	2
5.	13	3	0
6.	10	3	3
7.	7	1	0
8.	11	0	4
9.	10	4	2
10.	11	2	3
11.	10	3	3
12.	6	1	1
13.	11	3	2
14.	8	5	3
15.	7	2	7
16.	11	1	2
17.	12	0	2
18.	9	0	2
19.	12	2	1
20.	15	0	0
21.	12	0	4
22.	12	2	1
23.	10	2	3
24.	12	3	1
25.	8	2	5
26.	2	0	4
27.	6	4	6
28.	5	0	3
29.	6	0	0
30.	8	0	0
31.	5	1	0
32.	9	2	2
33.	5	5	3
34.	2	5	1
35.	4	2	2
36.	3	4	1
37.	0	3	5
38.	3	3	2
39.	6	1	1
40.	5	1	2

---

*The purified extract used in this study was made according to the technic reported by Boatner, Efron and Dorfman.[4, 5]

TABLE II

	Equal Size Reactions	Larger Reactions	Smaller Reactions	Total
Radial (a)	326	89	86	501 (n)
Ulnar (a')	326	86	89	501 (n')
Total (a+a')	652	175	175	1002 (n+n')
$\frac{\text{Radial}}{\text{Total}}$ $\frac{a}{a+a'} = p$	.5000	.5086	.4914	$.5000 = \bar{p} = \frac{n}{n+n'}$
a p	163.0000	45.2654	42.2604	$250.5000 = n\,\bar{p}$

$$\bar{p}\,\bar{q} = \bar{p}\,(1-\bar{p}) = .2500$$

$$\sum (a\ p) = 250.5258$$

$$\sum (a\ p) - n\,\bar{p} = .0258$$

$$\chi^2 = \frac{\sum (a\ p) - n\,\bar{p}}{\bar{p}\,\bar{q}} = .1132$$

equal in size; in 89 tests, the reactions on the radial side were larger than the corresponding reactions on the ulnar side; and in 86 tests, the reactions on the ulnar side were larger than the corresponding reactions on the radial side.

Table II shows the computation of chi-square** for this set of data. The chi-square test is a statistical means of showing agreement between observation and hypothesis. The theoretical expectation of the value of chi-square in this test is based upon the hypothesis that no difference in skin reaction sizes should result when a comparative test is made with the identical extract. The result of the computation indicates that the observed value of chi-square does not differ significantly from the theoretical expectation of that value. Therefore, the hypothesis of uniformity was not disallowed.

The original observations shown in table I are based upon a representative sample drawn from the whole population of comparative skin reactions. For purposes of demonstration, this large sample of 501 observations was broken into smaller samples; for instance, 16 samples of 40-48 observations each, and the chi-square value of each small sample computed. In this way, we have computed from the original observations the largest number of uncorrelated chi-square values for various sized samples. Table III represents these values. Such a division is useful because medical statistics are nearly always concerned with small samples.

Conventionally, $P = .05$ is the accepted statistical level of significance. However, a more stringent level such as $P = .02$ or $P = .01$ may be adopted to suit the requirements of the analyst. When $P = .05$ is used as the level of significance, the probability of our conclusion being valid is 19 out of 20, whereas when $P = .01$ is used as the level of significance, the probability of our conclusion being valid is 99 out of 100.

If $P = .05$ is taken as the level of significance, a value of chi-square equal to or

---

**Chi-square was computed by the Brandt and Snedecor formula.

TABLE III

Column	1		2		3		4		5		6		7		8		9	
Number comparative Tests in each Sample	29-32		40-48		60-64		73-80		89-96		106-112		138-142		250-251		501	
	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square
	2	2.224	2	6.400	2	5.334	2	8.963	2	7.335	2	2.649	2	4.666	2	0.382	2	0.113
	2	2.224	2	1.385	2	0.091	2	0.666	2	0.890	2	0.190	2	3.200	2	1.078		
	1	0.000	2	1.200	2	0.334	2	1.852	2	2.942	2	0.857	2	3.056				
	2	2.000	2	0.947	2	5.813	2	1.200	2	0.000	2	3.900						
	2	0.180	2	9.142	2	2.667	2	0.061	2	0.200								
	2	1.375	1	0.000	2	0.720	2	0.782										
	2	6.000	2	0.667	2	3.600												
	1	0.000	2	2.380	2	3.161												
	1	0.000	2	0.154														
	1	0.000	2	0.571														
	2	0.182	2	0.074														
	2	2.134																
	2	1.636																
	1	0.000																
	2	4.546																
	2	0.400																
Total Chi Square		22.901		22.920		21.720		13.524		11.367		7.596		10.922		1.460		0.113
Summation of Degrees of Freedom	27		21		16		12		10		8		6		4		2	
Value of P	.70-.50		.50-.30		.20-.10		.50-.30		.50-30		.50-.30		.10-.05		.90-.80		.95-90	

greater than 5.991* would be interpreted as disallowing the hypothesis of uniformity. Such a value occurs once in column 1, twice in column 2, once in column 4, and once in column 5. If P = .02 is taken as the level of significance, a chi-square value equal to or greater than 7.824 would be interpreted as disallowing the hypothesis of uniformity. Such a value occurs once in column 2 and once in column 4. If P = .01 is taken as the level of significance, a value of chi-square equal to or greater than 9.210 would be interpreted as disallowing the uniformity hypothesis. Such a value does not occur in any of the columns. The hypothesis of uniformity was not disallowed, although we observed in some of the columns a greater number of significant values of chi-square than was expected when P = .05 or P = .02 was used. This follows from the fact that the sum of any number of uncorrelated chi-square values is itself distributed in the chi-square distribution. The total chi-square test is a much more sensitive test than any number of independent values of chi-squares. For example, although the observed value of chi-square was greater than 5.991 for two samples out of 11 in column 2, when we should expect only one out of 20 to exceed such a value, the total chi-square value contributed by all the samples in this column was found to be 22.920. For 21 degrees of freedom, the corresponding value of P is between .50 and .30.

Our conclusion from this analysis is that parallel comparative skin tests made with serial dilutions of the same extract do not show statistically significant differences in skin reaction size.

TABLE IV

Case number	Equal size reactions	Sol. double concen. reactions larger	Sol. double concen. reactions smaller
1.	5	3	0
2.	3	2	0
3.	3	3	1
4.	1	7	0
5.	4	3	1
6.	4	4	0
7.	4	3	0
8.	5	3	0
9.	2	4	1
10.	3	5	0
11.	2	6	0
12.	3	4	0
13.	4	0	4
14.	4	2	2
15.	2	6	0
16.	6	1	1
17.	4	3	1
18.	2	6	0
19.	5	1	2
20.	4	4	0
21.	3	5	0
22.	3	4	0
23.	3	4	0
24.	3	4	0
25.	7	0	0
26.	5	3	0
27.	6	1	1
28.	6	1	0
29.	1	6	1
30.	4	2	2
31.	4	3	1
32.	5	3	0
33.	3	4	1
34.	5	3	0
35.	5	2	1
36.	7	1	0
37.	4	4	0
38.	5	2	1
39.	3	4	0
40.	3	5	0
41.	1	7	0
42.	3	5	0
43.	5	3	0
44.	2	3	3
45.	4	1	3
46.	2	6	0
47.	2	3	3
48.	3	4	1
49.	3	5	0
50.	1	4	0
51.	1	3	0
52.	4	2	0
53.	1	3	0
54.	3	2	0
55.	2	0	0

B. Extracts of Different Potency. Table IV represents the results of 403 comparative skin tests made on 55 house-dust-sensitive patients with extracts of differing potency. In each test, the solution of the extract used on one of the parallel scratches was twice as concentrated (by per cent extract in solution) as that used on the corresponding parallel scratch. These data show that equal sized reactions were obtained in 192 tests and that the more concentrated solution produced a larger reaction in 180 tests and a smaller reaction in 31 tests. The chi-square value computed from these data was found to be 210.448 which, for two degrees of freedom, gives a corresponding value of P less than .01. This

---

*For two degrees of freedom, when chi-square is 5.991, the corresponding value of P is .05; when chi-square is 7.824, the corresponding value of P is .02; when chi-square is 9.210, the corresponding value of P is .01.

TABLE V

Column	1		2		3		4		5		6		7		8		9	
Number Comparative Tests in each Sample	28-32		36-40		60-64		75-79		89-95		107-111		131-142		200-203		403	
	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square
	2	21.77	2	29.45	2	44.18	2	65.63	2	55.54	2	62.44	2	73.09	2	109.23	2	210.45
	2	22.53	2	36.37	2	20.63	2	23.05	2	50.27	2	65.36	2	56.97	2	101.41		
	2	12.73	2	3.60	2	45.07	2	32.12	2	8.47	2	55.88	2	84.10				
	2	8.00	2	23.27	2	45.07	2	53.90	2	46.41								
	2	21.77	2	30.00	2	19.93	2	34.28										
	2	24.00	2	7.11	2	20.00												
	2	12.46	2	16.13														
	2	8.00	2	38.35														
	2	15.13	2	12.00														
	2	30.44	2	23.12														
	2	4.00																
	2	17.82																
	2	38.00																
Total Chi Square		236.65		219.40		194.88		209.00		160.69		183.68		214.16		210.64		210.45
Summation of Degrees of Freedom	26		20		12		10		8		6		6		4		2	
Value of P	Less than 0.01		Less than 0.01		Less than 0.01		Less than 0.01		Less than 0.01		Less than 0.01		Less than 0.01		Less than 0.01		Less than 0.01	

means that if the solutions tested had been of equal potency, such a result would have occurred only once in more than 100 trials. Since once in more than 100 trials is an unlikely occurrence, the test disallows the hypothesis that the solutions were equal in skin reacting activity.

As above, this large sample was broken down into small samples, for each of which a chi-square value was computed. These are presented in table V. In this tabulation, we observe that the value of chi-square is less than 5.991 once in column 1, once in column 2, and not at all in any of the other columns. Chi-square values less than 7.824 occur once in column 1 and twice in column 2; chi-square values of less than 9.120 occur three times in column 1, twice in column 2, and once in column 5. However, the more sensitive total chi-square tests show that for each column the observed value of chi-square differs significantly from the value which would be expected if these solutions were of equal potency. For each of the columns, therefore, the hypothesis of uniformity is disallowed. From these studies, we conclude that there is an actual difference in the skin reacting potencies of the two extracts.

INAPPROPRIATENESS OF THE DEGREE CLASSIFICATION

The chi-square test may be used to show the existence of appreciable error on the part of the observer when reactions are classified according to degree of reaction rather than according to whether one of a pair of parallel reactions is equal to, or larger or smaller than the other. In the degree classification, the experimenter is called upon to make as many distinctions as there are sizes of reactions to be classified and to keep these unvaried from day to day. He must never call one reaction marked moderate and another of the same size marked. The existence of such errors is illustrated in table VI, in which the data classified according to degree of reaction are analyzed by means of the chi-square statistic, both for the whole sample and for various independent sub-samples drawn from the whole sample.

In this table (VI), the value of P corresponding to the total chi-square value decreases as the size of the sub-sample increases. For instance, the value of P for sample sizes of 30-32 observations is .90 to .80; for sizes of 93-96, it is .70 to .50; for sizes of 141-145, it is .50 to .30; and for one sample of 501 observations, it is just more than .05. It can be shown that a slight increase in the size of the sample would have produced a significant chi-square value. Thus, in the degree classification, the size of the sample is of great importance in interpreting the data.*

It must be noted that this method is in no way a test of comparative reactions, because each test is apparently not actually compared with its parallel. The test really compares the reaction sizes on the ulnar and radial sides of the forearm. On the assumption, based on these studies, that the same extract produces no significant difference between reaction sizes on the radial and ulnar sides of the arm, the distribution of reaction sizes should be identical for the two sides. As the size of the sample is increased, it is possible, by means of the chi-square statistics, to detect smaller and smaller differences and when the sample number reaches about 530 cases, the existence of significant experimental errors in degree classification becomes apparent. Therefore, it becomes evident that not only is the hypothesis tested by the degree classification relatively unimportant, but also that such classification is inappropriate for comparative tests.

The equal, smaller or larger designation of comparative skin reactions has been checked by the chi-square statistics and has been shown to give all the information which is statistically significant for purposes of comparison.

---

*Note that the chi-square values are computed from a 2 x 7 table instead of from a 2 x 3 table, as in the previous cases. This increases the number of degrees of freedom and so increases the chi-square value that is associated with the level of significance. The number of degrees of freedom is determined after making corrections for continuity.[6]

TABLE VI

Column	1		2		3		4		5		6		7		8		9	
Number Comparative Tests in each Sample	15-16		30-32		61-64		93.96		108-112		141-143		212-215		427		501	
	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square	Degrees Freedom	Chi Square
	1	0.473	3	0.989	4	3.628	4	4.947	4	4.764	4	8.326	4	8.716	6	9.989	6	12.463
	1	0.532	1	0.250	5	3.452	4	2.668	4	3.310	4	4.201	6	4.212				
	2	2.750	2	6.266	3	0.108	4	5.166	5	3.414	6	2.659						
	1	0.000	4	1.150	3	4.630	5	1.271										
	1	0.000	3	1.133	3	0.549												
	1	1.646	1	1.035	4	0.879												
	1	0.600	2	8.054														
	1	0.500	3	0.000														
	1	0.125	1	0.598														
	2	0.579	3	0.142														
	1	0.152	1	0.074														
	1	1.130	3	0.553														
	1	4.599	3	1.148														
	1	0.535																
	1	0.000																
	2	3.000																
	1	0.000																
	1	1.223																
	1	0.136																
	1	0.000																
	1	0.137																
	1	0.000																
	1	0.000																
	2	0.532																
	1	0.532																
	1	0.125																
	1	0.506																
Total Chi Square		19.812		21.392		13.246		14.052		11.488		15.186		12.928		9.989		12.463
Summation of degrees of freedom	31		30		22		17		13		14		10		6		6	
Value of P	More than 0.05		.90-.80		.95-.90		.70-.50		.70-.50		.50-.30		.30-.20		.20-.10		.10-.05	
Difference of * $\sqrt{2\chi^2}-\sqrt{2n-1}$	-1.52																	

*When the number of degrees of freedom is greater than 30, the value of $\sqrt{2\chi^2}-\sqrt{2n-1}$ should be calulated. When this value is found to be 1.65 then P = 0.05; if it is 2.05, P = 0.02; if it is 2.33 then P is .01; if it has still greater value P is less than .01

SUMMARY

1. Five hundred and one comparative tests on 40 house-dust-sensitive patients made with serial dilutions of the identical extract reveal no significant difference in reaction size between the radial and the ulnar sides of the forearm.

2. Four hundred and three comparative tests were made on 55 house-dust-sensitive patients. In each test the solution of the extract used on one of the parallel scratches was twice as concentrated (by per cent extract in solution) as that used on the corresponding parallel scratch. These tests reveal a significant difference in the reaction sizes between the two extracts.

3. Therefore, significant differences in reaction sizes when different extracts are tested are attributable to differences in potencies of the extracts and not to sampling errors in the tests.

4. The use and importance of the chi-square statistic for the analysis of comparative skin tests is presented.

5. The equal-larger-smaller classification of comparative skin reactions is shown to make full utilization of the information given in the comparative tests.

6. The degree classification of skin reaction sizes, because of the sampling errors introduced in the estimation of reaction sizes, is shown to be inappropriate for statistical analysis of comparative tests.

We are indebted to Dr. W. R. Pabst for his assistance in the preparation of this manuscript.

REFERENCES

1. Dorfman, R. I., and Efron, B. G.: Studies with antigens: 1. The skin reaction curve obtained with serial dilutions of extracts, J. Allergy, 9:464, 1938.

2. Efron, B. G., and Dorfman, R. I.: Studies with antigens: 2. The use of comparative skin reaction curves in the determination of the skin reacting potency of house dust extracts, J. Allergy, 10:443, 1939.

3. Efron, B. G., Boatner, C. H., and Pabst, M. R.: Statistics: the chi-square test, Internat. Corres. Club of Allergy, 3:59, 1940.

4. Boatner, C. H., Efron, B. G., and Dorfman, R. I.: The purification of house dust extracts, Science, 91:389, 1940.

5. Boatner, C. H., Efron, B. G., and Dorfman, R. I.: Studies with antigens: 3. The purification of house dust extracts, J. Allergy (to be published).

6. Fisher, R. A.: Statistical Methods for Research Workers, 7th ed., Oliver and Boyd, London, 1939.

THE MEDICAL SOCIETIES OF LOUISIANA PRIOR TO THE WAR BETWEEN THE STATES

WILLIAM DOSITÉ POSTELL,
M. S., B. S. IN L. S.*
NEW ORLEANS

PART III

THE FIRST PARISH SOCIETIES AND THE STATE MEDICAL SOCIETY

THE WEST FELICIANA MEDICAL SOCIETY

Before discussing the part played by the Physico-Medical Society in the formation of the Louisiana State Medical Society, it is necessary to trace the organization of several of the parish societies, although not a great deal is known about some of them. The first local society to be organized outside of New Orleans was in West Feliciana, in 1845. A copy of the "Rules and Regulations" as drawn up for the West Feliciana Medical Society was sent to the editor of the New Orleans Medical Journal, who seemed to think the code of medical ethics highly commendable. The society also appointed a Committee of Honor which was requested, among its other duties, "to interpose their best endeavors to cause a friendly reconciliation, whenever apprised of any misunderstanding that may unfortunately occur between members of the Society." Meetings were scheduled in St. Francisville at three-month intervals.[29] The first officers were:

P. B. McKelny, M. D., President.
Thomas Beaumont, M. D., Vice-president
D. B. Gorham, M. D., Treasurer
Samuel A. Jones, M. D., Corresponding Secretary
G. W. Prunell, M.D., Recording Secretary
Committee of Honor—W. G. Austin, M. D., William Ingalls, M. D., Thomas P. Linton, M. D.

THE ATTAKAPAS MEDICAL SOCIETY

The Attakapas Medical Society was organized November 10, 1846, at New Iberia, and, although the attendance was not very large, others who were prevented from attending sent assurances of their cooperation. The first officers were:[30]

---

*Librarian of the School of Medicine, Louisiana State University.

Jerome Mudd, A. M., M. D., President

Joseph W. Lyman, M. D., Vice-president

J. B. Hacker, M. D., Recording Secretary

Jas. B. Dungan, M. D., Corresponding Secretary

John Augustine Smith, M. D., Treasurer
Censors:

St. Mary's Parish—Jas. T. Smith, M. D., C. R. Fassit, M. D.

Lafayette—John G. Howard, M. D., G. W. Scranton, M. D.

St. Martin—Edward Shiel, M. D., Eugene Wild, M. D.

Vermilion—H. J. Sanders, M. D., G. Mills, M. D.

Meetings were to be held twice yearly, at New Iberia, on the second Tuesdays in November and in May, but after the organization meeting in November, 1846, nothing was heard of the society until May 9, 1848. At this meeting a report was read on the epidemic of yellow fever which had occurred in the vicinity of Breaux's Bridge during the summer and fall of the preceding year, but action was deferred on it until it could be studied further. Dr. Mudd read the report of the committee on "Laws to regulate the practice of medicine and to incorporate the Attakapas Medical Society," which was ordered to be filed.

On motion of Dr. Mudd a committee (Drs. E. K. Fassett, G. Mills, and G. W. Scranton) was appointed to address the members of the Western Medical Board "To ascertain from each one of the said board as to a convenient time for meeting to take the necessary steps to procedure a reorganization of said board to secure regular action in the future."[31] Evidently the Western Board, which had been organized in 1817, was functioning rather badly.

This meeting was presided over by the president, Dr. J. B. Dungan, and was attended by Drs. A. J. Saunders, E. K. Fassett, Jas. F. Fontaine, Jerome Mudd, Joseph Lyman, W. G. Mills, E. Shiel, A. Duperier, G. W. Scranton, R. C. Hilliard, R. H. Day, J. H. Baldridge, J. T. Alexander, E. F. Beauchamp, J. G. Howard, and J. B. Hacker. The latter, with Dr. James T. Smith, was appointed to prepare essays for the next meeting.

The Planters Banner,[32] published at Franklin, carried a brief notice of the Society in the June 22, 1848, issue: "We have received from Dr. Duperier of New Iberia, a copy of the constitution, by-laws and code of ethics of the Attakapas Medical Society. Also a list of the physicians who have become members. This society has been formed for the purpose of mutual improvement, the advancement of medical science, the elevation of the honor and dignity of the profession and for the promotion of harmony, good feeling and professional etiquette."

The same newspaper, for October 19, 1848, carried the notice of a meeting of the society for November 14. It does not seem to have been held until December 22. The roll call was answered by Drs. J. B. Dungan, A. Duperier, J. B. Hacker, Jerome Mudd, J. T. Alexander, R. C. Hilliard, A. J. Saunders, C. R. Fassit, W. G. Mills, and J. M. Lyman, and Drs. D. E. Meade and E. P. Beauchamp were elected to membership.[33]

At this meeting a committee of three (Drs. W. G. Mills, G. W. Scranton, and R. C. Hilliard) was appointed, by resolution, to address the legislature on the subject of amending the law regulating the practice of Physic in the State. Dr. E. Shiel and Dr. J. A. Smith were appointed to prepare essays for the next meeting, and the following officers were elected:

Dr. J. M. Lyman, President

Dr. W. G. Mills, Vice President

Dr. J. B. Hacker, Recording Secretary

Dr. D. E. Meade, Corresponding Secretary

Dr. A. Duperier, Treasurer

Censors for Lafayette—Drs. G. W. Scranton, E. F. Beauchamp.

Censor for Vermilion—Dr. J. T. Alexander

Censors for St. Martin—Drs. R. C. Hilliard, J. A. Smith

Censors for St. Mary—Drs. C. R. Fassit, J. T. Smith

FIRST ATTEMPTS TO FORM A STATE MEDICAL SOCIETY

Perhaps the most important activity of the Attakapas Medical Society and Physico-Medical Society of New Orleans was the part which they played in the formation of the Louisiana State Medical Society. At the December 22, 1848, meeting of the Attakapas Society a committee consisting of Drs. A. Duperier, J. B. Hacker and C. R. Fassit was appointed to correspond with the Physico-Medical Society on the propriety of holding a State Medical Convention in New Orleans on the first Tuesday in March, 1849. Drs. D. E. Meade, A. Duperier, C. R. Fassit, J. M. Lyman and J. Mudd were appointed delegates to the proposed convention, the call for which was issued in the following words:[34] "Whereas it is the opinion of the physicians comprising the Attakapas Medical Society, that a State Medical Society would tend to create concert of action between the physicians throughout the State, and thereby be conducive to the advancement of Medical Science in the State of Louisiana:—therefore Resolve that the Attakapas Medical Society convention, to be composed of delegates from the different country and Parish Societies in the State, and of the Medical men throughout the State, to convene in the city of New Orleans on the first Tuesday in March in the year 1849 for the purpose of organizing a general State Medical Society."

At the January 6, 1849, meeting of the Physico-Medical Society of New Orleans the communication from the Attakapas Medical Society was read and the following resolutions were unanimously adopted:[35]

"*1st. Resolve:* That the Physico-Medical Society have heard with pleasure that a 'State Medical Convention' is about to assemble on the second Tuesday on the ensuing month of March.

"*2nd. Resolve:* That we will cheerfully cooperate with our brethren throughout the State on their laudable object in meeting.

"*3rd. Resolve:* That the Physico-Medical Society do hereby tender to the State Medical Convention the use of their hall.

"*4th. Resolve:* That the corresponding Secretary of the Society be instructed to correspond with the Attakapas Medical Society on the subject of a State Medical Society and to transmit to that body a copy of the foregoing resolutions.

"*5th. Resolve:* That the foregoing resolutions be published in the New Orleans Medical and Surgical Journal.

B. H. Moss, Sec.; Thos. Hunt, M. D. Pres."

Only a few physicians appeared for the March meeting, which convened in the hall of the Medical College. On motion of Dr. Thomas Hunt, Dr. S. W. Dalton was appointed secretary, and Dr. Hunt also offered the following resolution:[36]

"Resolved, that a Medical convention of all resident licensed physicians of the State of Louisiana be united to assemble in the hall of the Medical College of the State, on the first Monday in December, 1849."

The Physico-Medical Society[37] passed the following resolution on the subject:

"Resolved—That the Secretary be requested to call the attention of the physicians of this state, by a notice in the forthcoming number of the New Orleans Medical and Surgical Journal to the Medical Convention to be held in this place, the first Monday in December next, for the organization of a State Medical Society."

THE FOUNDING OF THE STATE MEDICAL SOCIETY

The adjourned meeting convened on the proper date and was organized with Professor James B. Jones in the chair and Dr. S. W. Dalton acting as recording secretary. Dr. Simonds' motion that the convention resolve into a state medical society was carried and Dr. Hale of Alexandria was elected president, Dr. Axson of New Orleans recording secretary, Dr. Fenner corresponding secretary and Dr. Hare treasurer. The chair appointed Drs. Simonds, Barton, Penniston and Mather to draft a constitution. The document which they produced was brief, but sufficiently explicit to define the objects of the association and the duties of the officers and members.

The officers were to constitute a Board of Administration empowered to perform all necessary business between regular meetings. Eight standing committees,[38] from each of which an annual report was expected, were also appointed, as follows:

"1. On practical medicine — Dr. James Jones.
2. On diseases peculiar to negroes—Dr. S. A. Cartwright.
3. On the indigenous botany of the state and materia medica generally—Dr. J. L. Riddell.
4. General and social hygiene of the State, vital statistics, and meteorology—Dr. E. H. Barton
5. On medical education and the license law—Dr. W. P. Hort
6. On the sale of drugs and quack medicines and adulteration of medicine—Dr. G. A. Nott.
7. On physiology and pathology — Dr. Bennet Dowler
8. On midwifery and diseases of children —Dr. A. H. Cenas."

THE 1851 SESSION

At the 1849 session five parishes were represented by 48 members, 45 of whom were from Orleans Parish. The second annual session was scheduled for December 3, 1849, but actually occurred March 10, 1851. Again most of the members were from Orleans Parish. Four of the chairmen of standing committees were not prepared to report and begged to be excused. Reports were read by Dr. J. L. Riddell for the Committee on the Indigenous Botany of the State; by Dr. W. P. Hort, for the Committee on Medical Education and License Law; by Dr. E. H. Barton, for the Committee on the General and Social Hygiene of the State, and by Dr. S. A. Cartwright, for the Committee on the Diseases Peculiar to Negroes. Dr. Cartwright's report was particularly interesting, and a full discussion was participated in by the membership on it and the other reports.

The following committees were appointed:[39]

"1: On medical education and the license law—A. F. Axson, M. D., Chairman
2. On surgery and surgical operations—Warren Stone, M. D.
3. On physiology and pathology—Thos. Hunt, M. D.
4. On midwifery and the diseases of women and children—W. P. Hort, M. D.
5. On practical medicine—J. M. W. Picton, M. D.
6. On general therapeutic, materia medica and pharmacy — J. C. Simonds, M. D.
7. On the hygiene, meteorology and vital statistics of the State—E. D. Fenner, M. D.
8. On the botany and natural history of this and the adjoining states—J. Hale, M. D.
9. On the diseases peculiar to negroes and of southern climates—S. P. Davidson, M. D.
10. On the adulteration of medicines, the sale of drugs—Mr. E. C. Bolton."

Other committees were also organized, one of which had as its purpose the effecting of changes in the medical license law and to suppress wholesale quackery as it then existed. Another duty of this committee was the establishment of a registry of marriages, births and deaths throughout the state. Later in the year the Physico-Medical Society of New Orleans joined with the State Society in petitioning the Legislature to pass "suitable laws for the faithful recording of marriages, births and deaths," the following resolution being adopted January 31, 1851:[40]

"Resolved that the Physico-Medical Society highly approved of the memorial at the State Medical Society to the Legislature, on the subject of registration of births, deaths and marriages, and highly recommend the adoption of its suggestions."

At the 1851 meeting the State Society recommended to the profession the patronage of "Southern Medical Reports edited by Dr. E. D. Fenner."

THE 1852 SESSION

The third annual meeting of the State Society,[41] like the previous ones, was held at the hall of the Medical College, and the report of the proceedings of this meeting and the fourth meeting are available to the writer. The third meeting was called to order by the president, Dr. E. H. Barton, March 8, 1852, and lasted through March 12. Seventy of the 76 members who answered the roll call of members were from Orleans Parish. At the first meeting the usual reports were accepted and filed, and the next day the following officers were elected and were installed at once.

President—Dr. J. M. W. Picton
Vice-presidents—Drs. Logan, McCloud, Davidson, Bein, Farrell
Corresponding Secretary—Dr. J. C. Simonds
Recording Secretary—Dr. G. T. Browning
Treasurer—Mr. E. C. Bolton

At the meeting of March 10 it was decided that it was not necessary to incorporate the society. On the previous day it had been decided that since the new law of the state concerning medical licensure was not in operation, non-licentiates were eligible for membership. On the second day it was decided that to be eligible for membership in the society a physician must hold a diploma from a regularly constituted medical school of known character. Additional reports were read on the various days of the meeting, including the report on midwifery and diseases of women and children, which had been prepared by the late Dr. Hort and was read by Dr. Browning.

THE 1853 SESSION

The fourth annual meeting of the Louisiana State Medical Society[12] was called to order March 14, 1853, in the hall of the Medical College of the University of Louisiana, by the president, Dr. J. M. W. Picton. Twenty members were present and 15 others were admitted into full membership. The next day 42 members answered the roll call and heard the annual address of the President. The following officers were elected:

E. D. Fenner, M. D., President
Joseph Rouanet, M. D., Vice-president
A. Hester, M. D., Vice-president
J. W. P. McGimsey, M. D., Vice-president
J. Dominique, M. D., Vice-president
Thos. Cottman, M. D., Vice-president
N. B. Benedick, M. D., Corresponding Secretary
D. Macgibbon, M. D., Recording Secretary
E. C. Bolton, Treasurer

The remaining three days of the meeting were taken up with reading and discussion of various reports. It was decided to incorporate the Society under the general Incorporation Act of the State, and the following committees were appointed:

"1. On medical education—Dr. A. W. Ely
2. On anatomy, surgery, and surgical anatomy—Dr. I. L. Crawcour
3. On physiology and pathology—Dr. A. F. Axson
4. On midwifery and diseases of women and children—Dr. N. B. Benedick
5. On practical medicine—Dr. P. B. McKelney
6. On general therapeutics, materia medica and pharmacy—Dr. J. S. Copes
7. On meteorology and hygiene of the state and its vital statistics—Dr. E. H. Barton
8. On diseases peculiar to negroes and to a Southern climate—Dr. J. W. P. McGimsey
9. On adulteration of medicines and the sale of drugs and nostrums—Mr. E. C. Bolton
10. On the medical botany of the state—Dr. J. Hale."

THE 1854 SESSION

The fifth annual session of the State Society convened at the Medical College in New Orleans March 13, 1854, with the president, Dr. Fenner, in the chair. The attendance, for some reason, seems to have been very poor. Dr. Axson of New Orleans declined to accept the presidency, and the following officers were elected:[43]

Dr. E. H. Barton, President
Dr. N. B. Benedick, Vice-president
Dr. R. Bein, Vice-president
Dr. E. R. Brownell, Vice-president
Dr. G. T. Browning, Corresponding Secretary

Dr. D. Macgibbon, Recording Secretary

Dr. J. D. Foster, Treasurer

At this meeting a very interesting paper was read, by request, by Dr. Riddell, dealing with the sewerage of the city and prepared by the Sanitary Commission, of which he was a member. Other interesting reports were read by Dr. Copes, Chairman of the Committee on General Therapeutics, by Dr. McKelney, Chairman of the Committee on Practical Medicine, and by Dr. Crawcour, Chairman of the Committee on Anatomy, Surgery, and Surgical Anatomy.

THE 1855 SESSION

At the sixth session, which was held February 5, 1855, in the usual place, the retiring president, Dr. E. H. Barton,[44] delivered an important address, in which he said in part:

"Every invitation has been extended to our brethren in the rural districts to unite with us; every courtesy felt and offered; the honors of office have been participated in with them, and opportunities for distinction on committees; all in vain; and with the single exception of the Natchitoches Medico-Chirurgical Society no application for membership in the State Medical Society has been received from the local medical Societies, although the honor of suggesting it orginated in the country."

Dr. Warren Stone was elected president at this meeting and presided over all of the remaining sessions. The annual assessment on members was reduced from $5.00 to $2.00, and the Natchitoches Medico-Chirurgical Society applied for membership.

Dr. Barton's outlook on the prospects of the State Society was not unduly pessimistic, for no further meetings seem to have been held after the sixth session, in 1855. In 1878, Dr. Stanford E. Chaillé, writing in the New Orleans Medical and Surgical Journal on the occasion of a second attempt to organize a state medical society, called attention to Dr. Barton's address and suggested that those who were engaged in the present attempt should remember the lessons to be learned from the failure of the first state society.

PART IV

OTHER NEW ORLEANS SOCIETIES PARISH SOCIETIES

THE NEW ORLEANS ACADEMY OF SCIENCES

Although the Physico-Medical Society of New Orleans was fairly active during the years the state society was functioning, the physicians of New Orleans apparently felt the need of another organization and March 21, 1853, five gentlemen, Drs. Bennet Dowler, N. B. Benedick, Howard Smith, J. S. Copes, and H. D. Baldwin, "met by previous agreement to perfect an organization to a view to mutual improvement in the medical and natural sciences:"[45]

The constitution,[46] adopted April 25 of the same year, stated in part:

"Article I: Sec. 1.—That this association shall be styled the New Orleans Academy of Sciences, and its sole object shall be the advancement of Science, properly so called in all its various departments.

"Sec. 2—The Academy may . . . establish lectures in the various Sciences, and also a library and a museum whenever its funds shall admit.

"Article II: Sec. 1—The New Orleans Academy of Sciences shall consist of the following twenty-seven gentlemen, its founders:

"Howard Smith, M. D., Edward C. Bolton, Esq., Josiah Hale, M. D., I. L. Crawcour, M. D., Noah B. Benedick, M. D., D. F. M. Mitchell, Esq., H. D. Baldwin, M. D., Henry Hughes, Esq., W. B. Lindsay, M. D., Prof. W. C. Duneon, A. M., Albert W. Ely, M. D., Prof. R. H. Clulton, J. S. Copes, M. D., W. P. Riddell, A. B., J. C. Simonds, M. D., Rev. W. A. Scott, D. D."

The following officers were elected for 1853:

Josiah Hale, M. D., President.

J. S. Copes, M. D., First Vice-president

Albert W. Ely, M. D., Second Vice-president

I. L. Crawcour, M. D., Corresponding Secretary

W. B. Lindsay, M. D., Recording Secretary

Henry Hughes, M. D., Treasurer

Edward C. Bolton, Librarian
D. F. Mitchell, Curator

The Academy seems to have been very active from the time of its organization to the outbreak of the War between the States. Among the interesting papers presented before it were Dr. Barton's "Report to the Academy of Sciences of New Orleans on the Meteorology and Mortality of New Orleans for the Year 1854" and his "Cause and Prevention of Yellow Fever at New Orleans and Other Cities in America."

The following officers and committee chairmen are listed for the year 1859-1860:

Prof. J. L. Riddell, A. M., M. D., President

J. S. Copes, M. D., Wm. B. Lindsay, M. D., Vice-presidents

Prof. A. Vallas, Corresponding Secretary
Noah B. Benedick, M. D., Recording Secretary
James B. Durand, Registrar
James K. Bailey, Treasurer
R. C. Kerr, Librarian
Dr. J. S. Knapp and Henry Cline, Curators
Chairmen of Scientific Sections, 1859-1860—
Natural History of Animals—Dr. T. G. Richardson
Botany—Prof. J. L. Riddell
Geology and Mineralogy—P. H. Skipwith, Esq.
Chemistry and Natural Philosophy—Prof. I. L. Crawcour
Astronomy and Mathematics—Prof. A. Vallas
Antiquarian Researches and Ethnology—Dr. J. S. Copes
History and Biography — Hon. Charles Gayarré
Philology—Prof. John Mannair
Medicine and Physiology — Dr. N. B. Benedick
Geography, Statistics and Meteorology—Prof. J. D. B. DeBow
Psychology and Aesthetics—Dr. Samuel A. Cartwright
Agriculture—Dr. W. B. Lindsay
Jurisprudence and Political Economy—P. E. Bonford, Esq.

THE THIRD SOCIÉTÉ MÉDICALE DE LA NOUVELLE ORLÉANS

The Société Médicale de la Nouvelle Orléans was reorganized for the third time in 1859, and the Journal de la Société Médicale de la Nouvelle Orléans was then revived and was published for two volumes. A discourse by Dr. Charles Delery[17] at the first meeting voiced the hope that the new society would do as much good as its predecessors, but his pious wishes were not fulfilled, for the outbreak of the war put an end to all such activities. Almost all that remains of the third French medical society is the list of members, who were:[48]

Drs. D. Alpuente, O. Anfoux, M. P. Avila, Barthe, H. Bayon, J. Beugnot, E. Boulin, Borde, J. A. Cantrelle, H. Durel, H. C. D'Aquin, C. Delery, A. de Roaldes, E. Doumeing, De St. Romes, C. Faget, Ferrier (père), Ferrier (fils), Tegewisch, A. Joubert, A. Kohn, J. Labatut, Langebacker, A. Le Mat, G. LeMonnier, H. Lewis, S. Martin, B. Maas, Arm, Mercier, E. B. Marmillion, A. Natilli, Rouanet, H. Rance, P. L. Janey, Thiery.

THE NATCHITOCHES MEDICO-CHIRURGICAL SOCIETY

Not very much is known of the other societies which were active in the state outside of New Orleans in the years immediately before the war broke out. Thus nothing is known of the Natchitoches Medico-Chirurgical Society except that it applied for admission at the last annual session of the Louisiana State Medical Society. It is not even clear whether it was admitted.

THE MEDICAL ASSOCIATION OF NORTH LOUISIANA

The Medical Association of North Louisiana was organized at Shreveport, November 26, 1855. A constitution was adopted and a committee on cases, reports and essays was appointed, part of whose duty was to prepare scientific articles for publication. The only record which exists of the further activity of the society is that a year after its organization a paper on scarlet fever, written by Dr. J. D. Harper, and a paper entitled "Physiology and

Phrenology Compared," written by Dr. Drury Lacy, were submitted to the New Orleans Medical and Surgical Journal.[49]

THE PHYSICO-MEDICAL SOCIETY OF BATON ROUGE

The only record of the Physico-Medical Society of Baton Rouge is the Act of Incorporation,[50] which reads as follows:

"Sec. 1. Be it enacted by the Senate and House of Representatives of the State of Louisiana in General Assembly convened, that L. L. Laycock, Thomas J. Buffington, F. J. B. Romer, Richard H. Day, S. P. Ward, R. C. White, Timothy Fay, J. M. Williams, G. W. Dearing, John Perkins, J. W. P. McGimsey, P. W. Ender, B. Jourdan, T. B. R. Hatch, Louis Chippers, George A. Pike and others of said society shall from and after the date of this act, be and they are thereby constituted a body politic in deed and in law, which shall be entitled the Physico-Medical Society of Baton Rouge.

"Sec. 2. Be it further enacted . . . (Granted powers of corporation).

"Sec 3. (Society confirmed to certain object).

John M. Sandige
Speaker of the House of Rep.
Robert C. Wickliff
President of the Senate
P. O. Hebert
Governor

Approved
February 26, 1855"

THE HOUMA SCIENTIFIC ASSOCIATION

Under the heading of "Books and Pamphlets" the New Orleans Medical and Surgical Journal in 1859 carried a notice of the receipt of the "Constitution and By-Laws of the Houma Scientific Association, 1859. From T. A. Woods Esq., Corresponding Secretary." Nothing else is known of this organization.[51]

THE MEDICAL INSTITUTE OF THE PARISH OF ST. LANDRY

The last of the Parish societies to organize before the outbreak of war was the Medical Institute of the Parish of St. Landry, whose act of incorporation[52] reads as follows:

"Acts passed at the Fifth Legislature of the State of Louisiana at its second Session.

J. M. Taylor, 1861, p. 126-7

No. 165. An Act to incorporate the Medical Institution of the Parish of St. Landry.

Sec. 1. Be it enacted by the Senate and House of Representatives of the State of Louisiana in General Assembly, that Doltas George Hill, C. D. Talman, Eugene Pilate, Edward C. E. Pilate, John Taylor, R. H. Littell, E. J. Plamer, J. B. Lee, Wm. J. Offut, James Rayand, T. A. Cook, and all other persons who may be hereafter legally associated with them be, and they are thereby created a body corporate under the title of the St. Landry Medical and surgical Association . . .

Sec. 2. (Powers of Corporation)

C. H. Morrison
Speaker of House of Rep.
Henry M. Hyams
Lieutenant Governor
Thos. O. Moore
Governor

Approved
March 18, 1861"

CONCLUSION

This, then, is the rather confused history of medical organizations in Louisiana prior to the outbreak of the War Between the States in April, 1861. During the troubled years of the war there was naturally no time and no thought for such matters and immediately after the fighting ended the whole South was of necessity too engrossed with other concerns to resume immediately thought of anything not of vital importance to mere subsistence.

What happened when Louisiana was free to turn to reorganization in the medical field has been ably told by Dr. Fossier and others. It was not until 1878, however, that the Orleans Parish Medical Society, as it now exists, was formed, and that attempts to reorganize the Louisiana State Medical Society were again begun.

It will be noted that certain names occur and recur in the lists of officers, members and orators of the various medical societies which are the subject of this communication. Some of these names are easily recognizable, for their descendants are numbered among the present generation of medical practitioners in Louisiana. Readers who are particularly interested in these physicians as individuals are referred to the excellent studies of Dr. E. A. Fossier,[1, 53] Dr. Edmond Souchon,[54] and Dr. Rudolph Matas[55] on the physicians of the state.

REFERENCES

1. Fossier, A. E.: The Charity Hospital of Louisiana, New Orleans M. & S. J., 75:728; 791, 1922-23; and 76: 24; 67; 128; 188, 1923-24.

Fossier, A. E.: History of the Orleans Parish Medical Society, 1878-1928. Privately printed, 1930.

2. McMurtrie, Douglas C.: A Louisiana decree of 1770 relative to the practice of medicine and surgery, New Orleans M. & S. J., 86:7, 1933-34.

3. Jones, Joseph: Medical and Surgical Memoirs. New Orleans, The Author, 1890. 3:pt. 1, p. 137.

4. Gayarré, Charles: History of Louisiana, Amer. Dom. 4:194. F. F. Hansell & Bros., 1903.

5. Dowler, Bennet: Tableau of the yellow fever of 1853, New Orleans, Picayune, p. 15, 1854.

6. Acts passed at the Second Session of the Third Legislature of the State of Louisiana. New Orleans, J. C. de St. Romes, pp. 124-152, 1818.

7. Acts passed at the First Session of the Second Legislature of the Territory of Orleans, New Orleans, Bradford & Anderson, pp. 24-30, 1808.

8. Acts passed at the Second Session of the Second Legislature of the State of Louisiana. New Orleans, P. K. Wagner, pp. 84-86, 1816.

9. Acts passed at the First Session of the Fourth Legislature of the State of Louisiana. New Orleans, J. C. de St. Romes, pp. 70-72, 1819.

10. Annual report of the Board of Health of the State of Louisiana to the General Assembly for the year 1882. Baton Rouge, Leon Jastremski, p. 36, 1883.

11. Ibid., p. 38.

12. Annual report of the Board of Health of the State of Louisiana to the General Assembly for the year 1882. Baton Rouge, Leon Jastremski, p. 56, 1883.

13. Fossier, A. E.: History of medical education in New Orleans, Ann. Med. Hist., 6:320, 1934.

14. Courrier de la Louisiane. 11, 7 Janvier, 1818. (n. p.).

15. Acts passed at the Second Session of the Third Legislature of the State of Louisiana. New Orleans, J. C. de St. Romes, pp. 20-24, 1818.

16. Acts passed at the First Session of the Fourth Legislature of the State of Louisiana. New Orleans, J. C. de St. Romes, p. 26, 1819.

17. Rapport fait à la Société Médicale sur la fièvre jaune qui a regné pendant l'été de 1817, par M. M. Gross et Garadin. American Med. Recorder, 2:217-224, 1819.

18. Annual report of the Board of Health of the State of Louisiana to the General Assembly for the year 1883-84. Baton Rouge, Leon Jastremski, pp. 142-145, 1884.

Annual report of the Board of Health of the State of Louisiana to the General Assembly for the year 1882. Baton Rouge, Leon Jastremski, pp. 81-82; 113-114, 1883.

Proceedings of the Louisiana State Medical Society at its third annual session, 1852. New Orleans, H. Spencer, p. 16, 1852.

19. Acts passed at the Second Session of the Fourth Legislature of the State of Louisiana. New Orleans, J. C. de St. Romes, pp. 14-18, 1820.

20. Annual report of the Board of Health to the General Assembly for the year 1882. Baton Rouge, Leon Jastremski, pp. 84-85, 1883.

21. Ibid., pp. 84-85.

22. Acts passed at the First Session of the Twelfth Legislature of the State of Louisiana. New Orleans, J. C. de St. Romes, pp. 140-143, 1835.

23. Rapport fait à la Société Médicale sur l'épidémie de fièvre jaune qui à regné à la Nouvelle-Orléans pendant l'été et l'automne de 1837. J. de la Soc. Méd. de la Nouvelle-Orlèans. 1 année, Novembre, Table Generale. p. 272.

24. Delery, Charles: Précis historique de la fièvre jaune, épidémie de 1858. Nouvelle Orléans, Imprimerie Franco-Americaine, p. 47, 1859.

25. Acts passed at the Second Session of the Sixteenth Legislature of the State of Louisiana. New Orleans, J. C. de St. Romes, p. 54-55, 1842.

26. Logan, Thomas M., M. D.: Memoir of C. A. Luzenberg, M. D. President of the Louisiana Med.-Chir. Soc., New Orleans M. & S. J., 5:682, 1848-49.

27. Medical societies of New Orleans. New Orleans M. J., 1:373-376, 1844-45.

28. Hort, William P., M. D.: An essay on the subject of quarantine laws; read before the Physico-Medical Society of New Orleans, at the sitting of February 15, 1845. New Orleans M. J., 2:1-21, 1845-46.

29. The West Feliciana Medical Society, New Orleans M. J., 2:223, 1845-46.

30. Proceedings of the Attakapas Medical Society, New Orleans M. & S. J., 5:127, 1848-49.

31. Ibid., p. 128.

32. The Planters Banner v. 13, No. 26, June 22, 1848. (n. p.).

33. Sitting of the Attakapas Medical Society, New Orleans M. & S. J., 5:534, 1848-49.

34. Proceedings of the Attakapas Medical Society, New Orleans M. & S. J., 5:127, 1848-49.

35. Action of the Physico-Medical Society, New Orleans M. & S. J., 5:535, 1848-49.

36. State Medical Convention, New Orleans M. & S. J., 6:546, 1849-50.

37. Louisiana State medical convention and the Physico-Medical Society of New Orleans, New Orleans M. & S. J., 6:422, 1849-50.

38. Louisiana State Medical Society, South. Med. Reports, 1:254, 1849.

39. Transactions of the Louisiana State Medical Society, New Orleans M. & S. J., 7:807, 1850-51.

40. Transactions of the Physico-Medical Society, New Orleans Monthly Med. Register, 2:4, 1852.

41. Proceedings of the Louisiana State Medical Society at its Third Annual Session, 1852. New Orleans, H. Spencer, pp. 1-10, 1852.

42. Proceedings of the Louisiana State Medical Society at its Fourth Annual Session, 1853. New Orleans, Joseph Cohn, pp. 1-11, 1853.

43. State Medical Society, New Orleans Med. News & Hosp. Gazette, 1:69, 1854-55.

44. Chaillé, Stanford E.: History of the two State Medical Societies organized in Louisiana in 1849 and in 1878, New Orleans M. & S. J., 5:867, 1877-78.

45. Papers read before the New Orleans Academy of Sciences, 1886-1887. President's address before the New Orleans Academy of Sciences. Prof. J. B. Elliott, pp. 6-7. (Manuscript).

46. Constitution and By-Laws of the New Orleans Academy of Sciences together with a list of Fellows, Honorary and Corresponding members. (New Orleans), True Delta office, 1859.

47. Séance Inaugural de la Société Médicale de la Nouvelle Orléans, Du 2 fevrier 1859. L'Homoin, 1:4-12, 1860.

48. Annual report of the Board of Health of the State of Louisiana to the General Assembly of the State for the year 1882. Baton Rouge, Leon Jastremski, p. 105, 1883.

49. Medical Association of North Louisiana, New Orleans M. & S. J., 12:575; 746, 1855-56 and 13:739, 1856-57.

Furman, F. S.: A history of the Shreveport Medical Society, New Orleans M. & S. J., 82:12, 1929-30.

50. Acts passed by the Second Legislature of the State of Louisiana. Baton Rouge, Emile La Sere, pp. 17-18, 1855.

51. Books and pamphlets received, New Orleans M. & S. J., 16:5, 1859.

52. Acts passed at the Fifth Legislature of the State of Louisiana at its Second Session. Baton Rouge, J. M. Taylor, pp. 126-127, 1861.

53. Fossier, A. E.: The early history of medical education in New Orleans, New Orleans M. & S. J., 87:499, 1934-35.

54. Souchon, Edmond: Original contributions of Louisiana to medical sciences, a biographic study. Read at the meeting of the Louisiana Historical Society on December 15, 1915.

Souchon, Edmond: Original contributions of Louisiana to medical sciences, a bibliographic study. New Orleans, n. d. (pamphlet).

55. Matas, Rudolph: The influence of the last 100 years on medical education, on the culture, and prosperity of New Orleans, New Orleans M. & S. J., 87:514, 1934-35.

Matas, Rudolph: Remarks in presenting a stereopticon exhibit of the portraits of the founders and presidents of the Louisiana State Medical Society, New Orleans M. & S. J., 82:20, 1929-30.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio
For one year: Lucien A. LeDoux, M. D., Vice-chairman.
H. W. Kostmayer, M. D.
Secretary
For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF
John H. Musser, M. D. .... *Editor-in-Chief*
Willard R. Wirth, M. D. .... *Editor*
Edwin L. Zander, M. D. .... *Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D. .... *General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

CANCER—MATERNAL WELFARE—MENTAL HEALTH

Three of the activities of the State Medical Society functioning through special committees deserve to be mentioned here because of the importance of the work that they are conducting.

The Committee on Cancer has been most active this past year. It has publicized and spread widely information concerning cancer through radio, through articles both in the lay and medical press, and through talks to lay groups within the State. This Committee reported to the House of Delegates at the meeting in May but of course were unable to point out all of their accomplishments throughout the State. It hardly needs to be reiterated what the Cancer Committee is doing; it is extremely important. It is only through early diagnosis and early recognition of the symptoms of this dreaded disease that it can be cured.

The Committee on Maternal Welfare is another committee that has given much thought to the ever-present problem which exists here in Louisiana, in fact throughout the South, of a death rate higher than it is in most states of the Union and higher than it is in many of the European countries. The House of Delegates in appointing this Committee has recognized the importance of this problem and we believe the Committee will be enabled, through the work it is now doing, to reduce materially the number of deaths in pregnant women.

The Committee on Mental Health has some excellent recommendations to make to the House of Delegates which it is hoped will be put into effect through the instrumentality of the Committee on Legislation through their contact with the executive and legislative branches of the government. Specifically this Committee recommended an adequate psychopathic department at Charity Hospital for patients with temporary mental conditions; the development of a centralized medical commission with supervision over all state hospitals, homes and colonies, plus the institution of civil service of the medical staffs of these medical institutions; increase and improve facilities for feeble-minded colonies; make additional provisions for the care of epileptics; provide for private hospitals with proper supervision by the centralized medical commission; provide for parish judges to have access to trained psychiatric advice; and to provide psychiatric assistance to the coroners of the larger towns. If these recommendations can be carried out much good should ensue. There is no question in the first place that the facilities for the care of the insane in the State of

Louisiana are inadequate. The same applies to the epileptics. Improvement of medico-legal procedures should be put into effect as promptly as possible in order to enable the legal aspects connected with mental disease to be carried out in an intelligent and sensible manner.

MEDICAL PREPAREDNESS

It has been thought advisable again to remind the members of the State Medical Society concerning the problem of medical preparedness. At the recent meeting of the American Medical Association in New York representatives of the Surgeon General's office presented a plan whereby medical men of the country would be organized so that in the event of war the profession would be ready to carry on without dislocation of civil practice and at the same time have men assigned to medical service who would be prepared adequately to take care of their particular assignment. This plan, subject to certain modifications, was accepted unanimously by the American Medical Association through a resolution presented by the Chairman of the Board of Trustees. In pursuance of this plan, the headquarters office of the Association promptly and immediately began to prepare for the registration of all physicians in the country. Within a very few weeks there was sent to all medical men a questionnaire concerning important factual information regarding each individual. About fifty per cent of the doctors of the country have already filled out and returned the questionnaire.

It is of extreme importance that all physicians carry out the request of the American Medical Association, through its House of Delegates, to fill out and submit promptly the completed questionnaire. Every doctor who has not done this, should do so immediately. If the questionnaire has not been received, please communicate with the Committee on Medical Preparedness of the American Medical Association and ask for the form.

The response met so far indicates that the medical profession is going to back up the effort to obtain good medical service for the army should it be necessary to provide civil doctors. The American medical profession has always responded nobly and promptly to the needs of its country as witnessed by the large number of men who gave up homes and practice and went away to the last war. If war should come to the United States, God forbid, we men of medicine should be prepared to do our utmost for this great democratic country in which we live.

SULFAPYRIDINE IN PNEUMONIA

It may be that we have harped too frequently on the use of sulfapyridine in pneumonia. The astoundingly brilliant, often dramatic results of treatment with this drug, however, warrant extensive discussion of its use. While it is true that the reduction in the death rate has been spectacular it must not be forgotten that sulfapyridine after all is a drug which is extremely potent, which has not much more than passed the experimental stage and which is likely to produce serious toxic reactions. In substantiation of this last statement a recent publication by Detweiler et al.* might be quoted. Although these authors had a relatively small series of patients, nevertheless their results concur with those published on much larger series. The death incidence in their group of 70 patients was five, practically all deaths occurring in elderly individuals. Complications were not reduced by this form of therapy. Of particular interest is the fact that 85 per cent of 90 patients had toxic manifestations. The milder toxic expressions were nausea and vomiting, frequently controlled by nicotinic acid; anorexia, headache, dizziness, cyanosis and facial twitching. None of these of course are of any particular moment. The serious complications consisted of oliguria, occurring in nine patients; anuria in three; gross hematuria in six; leukopenia in eight; anemia in six; cutaneous rashes in six and an occasional thermal reaction, or mental changes.

The kidney manifestations that are pronounced should be treated by prompt withdrawal of the drug and large amounts of fluid given intravenously and by mouth. The anemia and the cutaneous rashes, while listed as being serious, remedied themselves very promptly, according to Detweiler, after the patient recovered and were not considered an indication for the cessation of treatment. The leukopenia apparently resulted in the death of one of his patients who developed agranulocytosis.

The important information regarding this presentation has to do primarily with watching the patient closely who is being given large doses of sulfapyridine, observing the urine and the blood count frequently. If heavy dosage is indicated or is being employed, then by all means the physician should be insistent upon the patient taking larger quantities of fluid and if unable to do so by mouth then the fluid should be given into the vein. Incidentally, intravenous use of sodium sulfapyridine should be employed only when patients cannot be given the drug by mouth.

*Detweiler, H. K., Kinsey, H. I., Brown, W. H., and Feasby, W. R.: Treatment of pneumonia with sulfapyridine; observations on toxic reactions, Arch. Int. Med., 65; 1144, 1940.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

TO ALL MEMBERS OF ORGANIZED MEDICINE IN LOUISIANA

Recently I have been honored by appointment as State Chairman of the Committee on Medical Preparedness to meet the present emergency. From time to time you will be acquainted, either personally or through the columns of the Journal, of further activities in connection with this work. Very shortly a state committee will be appointed, the function of which will be to conduct meetings on the subject of medical preparedness with the various district and parish medical societies or in whatever locality deemed advisable.

Every doctor in Louisiana is being sent a questionnaire regarding his present medical status and his future desires in relation to the medical work incident to the emergency. I beseech you to respond promptly by filling out this questionnaire and returning same to the American Medical Association as indicated. I am most desirous that the medical profession of this state respond in a truly patriotic and interested manner as they have always done in the past. Your cooperation is needed to make this movement a success.

C. Grenes Cole, M. D., President
Louisiana State Medical Society.

COMMITTEE ON CARE OF THE INDIGENT PHYSICIAN

The Journal has received a communication from the Chairman of the Committee on Care of the Indigent Physician, enclosing a letter from a prominent New Orleans physician, wherein Dr. Weiss makes the following suggestion:

> "It is my opinion that it would prove beneficial to the fund to give this letter space in the Journal. This being the first contribution to the fund for the care of the indigent physician, as a momento to the deceased, it might suggest similar contributions in the future."

The letter enclosed in the communication from Dr. Weiss, read very much as follows:

> "Dear Dr. Weiss:
>
> "Enclosed please find a check for the Indigent Physicians Fund. This is in memory of my mother who passed away last week and is given as partial appreciation for the services rendered by her physician.
>
> "Yours very truly,
>
> "Dr.................................."

BICENTENNIAL CONFERENCE OF THE UNIVERSITY OF PENNSYLVANIA

The Bicentennial Conference of the University of Pennsylvania will be held September 16-20 in Philadelphia. This conference will have to do with a variety of intellectual, professional and religious subjects. For the medical science, there has been prepared a series of outstanding presentations. Symposia will be held on nutrition, hypertension, cancer, virus research, intestinal obstruction, as well as many others.

The symposia will be participated in by outstanding medical scientists and clinicians from all over the United States.

UNITED STATES PUBLIC HEALTH SERVICE

Surgeon Winfield K. Sharp, Jr., has been relieved from duty at New Orleans and has been ordered to Washington, for duty.

Assistant Surgeon William F. Powell has been relieved from duty at New Orleans and ordered to Washington.

Assistant Surgeon Arnold B. Kurlander has been relieved from duty in New Orleans and ordered to the Marine Hospital in Galveston.

Assistant Surgeon William J. Brown has been relieved from duty at New Orleans and ordered to proceed to Medical Center for Federal Prisoners, Springfield, Missouri, for duty.

Assistant Surgeon Robert L. Griffith has been ordered from New Orleans to U. S. Marine Hospital, Savannah, Georgia, for duty.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The Mississippi Valley Medical Society will meet at Hotel Fort Armstrong, Rock Island, Illinois, September 25-27.

The winner of the annual essay contest is Dr. John F. Casey, of Boston. The winner last year was Dr. Frederick F. Boyce, of New Orleans.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Written examination will be held January 4, 1941 in various cities of the United States and Canada. For further information address Dr. Paul Titus, 1915 Highland Building, Pittsburgh, Pennsylvania.

WARNING

Physicians in Alabama and Tennessee have complained that a Mr. C. W. Myers, who claims to be representing F. A. Davis Company of Philadelphia, has taken orders for books, collected for them at the time and failed to deliver them.

He will probably attempt to continue his fraudulent operations in the southern states. Any information should be referred to the Better Business Bureau in your city or Philadelphia or to F. A. Davis Company, 1914 Cherry St., Philadelphia.

LOUISIANA STATE EMPLOYMENT SERVICE

Among the 180,000 persons who have registered with the New Orleans office of the Louisiana State Employment Service since its inception, thousands of professional and semi-professional workers are listed, together with many others who are trained and experienced as their assistants. This applies to the medical quite as well as to the legal, architectural, engineering or other professions.

In the process of employment turnover the recently unemployed are constantly being called to positions, and on the other hand many recently employed are being laid off. It is the object of the governmental employment offices throughout the nation to minimize such turnover by referring thoroughly satisfactory employees to all job-openings in every instance, so that (economic factors excepted) there will be no occasion, ordinarily, for further dismissals or reemployment.

Specifically, we stand ready to refer to the members of the medical profession, whether for private office, clinic, or hospital service, the qualified type of employees they require; receptionist, office assistants, laboratory technicians, registered nurses, practical nurses, and the like.

We carefully check past records of our registrants, and refer to you, at your request, only those known to be thoroughly competent and qualified in every other way.

We list below a few of our desirable applicants:

WOMEN

Medical Stenographer: Single, aged 28. 7 years experience in secretarial and stenographic work, including 3 years with dental clinic of local university. Intelligent. Nice personality. Will accept temporary or permanent employment.

Ask for applicant 4-1

Doctor's Office Assistant: Trim, neat appearing young woman of 34. 8 months recent experience as general clerk and assistant in a physician's office. Some experience as office clerk in clinic of large local hospital. Has personality and initiative.

Ask for applicant 4-2

Trained Nurse: Graduate of Charity Hospital. 4 years institutional experience and 7 months general private duty. Member Louisiana Nurses' Association. Petite brunette type. Well groomed, aged 26.

Ask for applicant 4-3

Practical Nurse: Settled woman, pleasant, intelligent. 1½ years institutional training. Has handled paralysis, diabetes, broken hip, nervous cases in aged group; also obstetrical work and infant care. Gives applications, simple massage; enemas; and keeps physicians' charts. Take double duty; handle any type case. Excellent references. Reasonable wage.

Ask for applicant 4-4

MEN

Physician: Age 49. For past 5 years examining physician for government agency, some general practice. For 11 years specialized in diagnosis and treatment of skin diseases. Several years experience as teacher of dermatology at medical schools.

Ask for applicant 4-5

Medical and Surgical Technician: Age 22 years. 4 years experience as laboratory assistant while attending school, pre-med work, tissue structure, 3 years, B. S. degree.

Ask for applicant 4-6

Graduate Nurse: Age 27. Married. Past year acting as cancer research assistant in medical school. 4 years experience as nurse at first aid station for government. 1½ years as undergraduate nurse in army hospital.

Ask for applicant 4-7

Practical Nurse: Man of 37; clean, quiet, pleasant. Speaks English, French. Well trained hospital orderly. Keeps charts; gives enemas; can catheterize. Experienced in cases of paralysis, arthritis, meningitis, cancer, typhoid, tuberculosis, mental disorder. Adequate private home experience. Take double duty; leave city, if required. Reasonable wage. Excellent references.

Ask for applicant 4-8

Louisiana Department of Labor
Louisiana State Employment Service
826 Perdido Street, MAg. 5041

INFECTIOUS DISEASES IN LOUISIANA

For the week ending July 20, according to the report of the Bureau of Epidemiology of the Louisiana State Board of Health, the number of hook worm cases jumped from a yearly average of approximately five per week to 297 reported cases. Evidently there has been some type of survey in this state to determine the incidence of worm infestation. Other diseases reported in numbers greater than ten include 135 cases of syphilis, 45 of pneumonia, 43 of cancer, 31 of pulmonary tuberculosis, 28 of typhoid fever, 27 of gonorrhea, 23 of malaria. During this week there was apparently an epidemic of poliomyelitis in DeSoto Parish where seven cases were reported. The typhoid fever cases were scattered throughout the state, no parish having more than four instances. The next week syphilis regained its usual place at the head of the list with 367 cases, followed in order by 39 cases of cancer, 37 of pulmonary tuberculosis and of typhoid fever, 32 of pneumonia, 26 of gonorrhea, 18 of malaria and 14 of whooping cough. During this week there were five additional cases of poliomyelitis reported from DeSoto Parish, two from Caddo and one from Orleans. There were also listed this week six cases of typhus fever. The typhoid fever patients were disseminated throughout the state; Franklin Parish, with four instances, was the only parish with more than three cases. For the thirty-first week of the year, ending August 3, there were listed in figures greater than ten, the following diseases: 206 cases of syphilis, 20 of cancer, 16 of typhoid fever, 15 of measles, 14 of gonorrhea, 12 of pulmonary tuberculosis, 11 of poliomyelitis and 10 of pneumonia. The poliomyelitis cases were scattered throughout the state, however there were five of them in New Orleans; Lafourche Parish was the only other parish to have more than one case. The State Board of Health called attention to the fact that there were 29 cases reported during the month of July, a very large number, and that physicians are requested to report all suspected cases to the health authorities immediately. Isolation of cases or suspected cases is important. For the thirty-second week of the year, which ended August 10, the following were the diseases most frequently reported: 86 cases of syphilis, 35 of pulmonary tuberculosis, 27 of whooping cough, 22 of pneumonia, 20 of gonorrhea, 19 of cancer, 16 of malaria and 14 of typhoid fever. The typhoid fever cases were scattered throughout the state, no one community having a large number, however this week of the five cases of poliomyelitis reported, four originated in Iberia Parish. For the last week for which we have a report and which terminated August 17, there were listed 426 cases of syphilis, 38 of malaria, 36 of typhoid fever, 34 of pulmonary tuberculosis, 25 of cancer, and 21 each of gonorrhea and pneumonia. The four cases of poliomyelitis reported this week originated one each in Caddo, Claiborne, Grant and Webster Parishes. It is to be noted that 11 of the 36 cases of typhoid fever came from East Carroll Parish; West Carroll and Tensas Parish each had four cases. There were also reported this week four cases of typhus fever, one each from Acadia, Ascension, Calcasieu and Lincoln Parishes.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reported that for the week ending July 13 there were only 120 deaths in the City of New Orleans, 76 of which occurred in the white population and 44 in the negro. Eleven of these deaths were in infants under one year of age, proportionately divided in practically the same ratio as the total number of deaths. The following week, which terminated July 20, saw a fairly sharp increase in the number of deaths largely due to an increase in negro deaths to 69 as contrasted with 44 the previous week The number of white individuals who died this week was only four greater than the previous week. This increase may be in part explained by the large number of deaths in infants, under one year of age. Of these deaths, twenty in number, twelve were negro children. For the week ending July 27 there occurred 176 deaths in the city of New Orleans, divided 106 white and 70 negro; 20 of these deaths being in children under one year of age, 11 of which were negro. There was a very sharp diminution in the number of deaths for the week ending August 3, there being only 101 citizens of New Orleans expiring in that particular week as contrasted with a three year average of 154. Sixty of these deaths occurred in white individuals and 41 in negroes, with 12 infant deaths. There was some increase in the week ending August 10 but still well below the three year average. This week there were 92 white and 42 negro deaths, making a total of 134. Seventeen of these deaths occurred in children under one year of age.

CORRESPONDENCE

New Orleans Medical and Surgical Journal
1430 Tulane Avenue
New Orleans, Louisiana

Gentlemen:

Permit me to correct an error in your issue of June, 1940, page 728, wherein the statement is made that Mrs. Oscar Dowling organized the Woman's Auxiliary of our State Society. The truth of the matter is that following my resolution which passed the House of Delegates in 1929, the Auxiliary was organized by Mrs. Herold with the support of Dr. Gouaux, President-elect and me as Past President. Mrs. Dowling, who was absent from the meeting, was elected the first President and, with the assistance of the late lamented Dr. Dowling, we prevailed upon her to accept the position.

This correction is made by me in order to keep the records straight, as I am very proud of being a "Godfather" to the Woman's Auxiliary.

Sincerely yours,
Arthur A. Herold, M. D.

New Orleans Medical and Surgical Journal
1430 Tulane Ave.
New Orleans, La.

Dear Sir:

I have had an experience in the last month which I wish to tell you so that others may profit by my ill fortune.

Some short time ago a man posing as a special agent of the Mutual Benefit Health and Accident Insurance Company of Omaha, with whom I already have a policy, called at my office and presented convincing credentials and thereupon sold me a policy covering hospitalization for my wife and small son. He took a check made out to him as "special agent" and gave me a receipt on the company's official form.

When I did not receive the policy in due time I wrote the company and they informed me that he was not with them at this time and had been guilty and charged with operating similar enterprises in other communities among the medical profession who already had policies bona fide, with their concern.

So much for that. He is dark, about 35-40, weight about 200-225, nearly 6 ft. tall and called himself "Amos L. Rogers" in my presence. He appears to be prosperous and well kept and has a good many insurances of which he claims to be special agent. He is operating in the Gulf Coast states so the Mutual says and I wish this to be published so others may take heed of this man's dishonesty.

Thank you.

M. L. Levy, M. D.,
Jonesville, La.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

PARISH PRESIDENTS

Beauregard, Mrs. John D. Frazar, DeRidder; Caddo, Mrs. C. B. Erickson, Shreveport; Calcasieu, Mrs. R. P. Howell, Lake Charles; Iberville, Mrs. Melvin A. Schudmak, White Castle; Jefferson Davis, Mrs. John G. McClure, Welsh; Lafayette, Mrs. L. A. Prejean, Scott; Lafourche, Mrs. Leo J. Kerne, Thibodaux; Natchitoches, Mrs. Joseph Bath, Natchitoches; Orleans, Mrs. Aynaud F. Hébert, New Orleans; Ouachita, Mrs. A. D. Tisdale, Monroe; Rapides, Mrs. L. D. Gremillion, Alexandria; St. Landry, Mrs. Edwin L. Landry, Opelousas; St. Mary, Mrs. T. E. Dreher, Morgan City; St. Tammany, Mrs. Walter Simmons, Covington; Tangipahoa, Mrs. Valmont J. Gautreaux, Hammond; Terrebonne, Mrs. Saul F. Landry, Houma; Vermilion, Mrs. Robert J. Young, Abbeville; Washington, Mrs. W. C. Brown, Franklinton; Webster, Mrs. B. L. Cook, Minden; Second District, Mrs. J. E. Clayton, Norco.

EXHIBITS AT A. M. A. MEETING

The exhibits of the various states at the meeting of the Woman's Auxiliary to the American Medical Association are most interesting and informative and are, to those not cognizant of the effort and thought put into them, a distinct surprise. Of course, the aim and purpose of these exhibits is to show in a pictorial way the projects and accomplishments of the state auxiliaries and their component parts, the county auxiliaries.

To the officers, they afford an opportunity to easily review the work of each state that they may compare the activities of the auxiliaries in the various sections of the country and thus judge which sections need the most help. To the delegates and state presidents it gives an opportunity to carry away with them a mental picture that is valuable in encouraging some state auxiliaries to improve their work and to others it offers new ideas to take home to their members. There is another group to which this phase of our work makes an appeal. I refer to those members who are unwilling to sit and listen to reports read, but are thrilled to be able to go through a scrap book, study a map or a poster and learn in a short time the work that an auxiliary has accomplished. I hope some time in the near future we shall have state reports filed and published and the exhibits carefully studied and appreciated by those attending the meeting. This will then give us more time to devote to new business and discussions of how to improve our organization and will also shorten and enliven our business sessions. This end will never be attained, however, until all the auxiliary members become aware of the importance of the exhibits and are willing to put more time, more thought, more effort and more money into them.

Thirty-seven states out of thirty-eight states having auxiliaries sent exhibits this year, which is, I think, the best response we have ever had to the urgent appeal of our National Exhibits Chairman that every state be represented. A registration book is kept at the entrance to the room housing the exhibits and each person entering is requested to register. I have not the figures for the last two years, but in San Francisco five hundred thirty-seven signed this register and I feel certain that more have signed it the last two years.

The exhibit room has also become more or less a social center. You often hear the remark: "Meet me in the exhibit room, for then if you are late I shall be pleasantly occupied." This year, owing to the fact that the meeting was held in New York, there was no "tea" in the exhibit room. Nearly every year during the past few years there has been one and it has been a most delightful affair; listening to soft music and eating light refreshments while being entertained and fascinated by the clever and arresting way in which many of the auxiliaries have pictured the work they are doing.

The three most popular forms followed by most of the auxiliaries are maps, posters and scrap books, but of course there are other ways of showing their activities.

New York this year had a replica of the indigent physician's home. It was a colonial house, completely furnished in miniature with a fairy on the chimney top and it was placed on a green grass base. Helping with the up-keep of this home, its furnishings and its occupants is one of the major projects of this state.

Texas this year had one of the most out-standing and unusual exhibits. It consisted of a revolving hexagon of wood painted to show scenes. Each section portrayed one of the following activities: 1. Philanthropic. 2. Health goodness, giving to outstretched hands. 3. Health education. 4. Social, banquets and dance activities. 5. Physical examinations to adults and children. 6. Public relations, operating room scene.

The scrap books are in many instances works of art. One from Washington State was especially lovely and was done entirely by a doctor's wife. The covers were made of wood, hand carved, and pictured such things as a doctor in the horse and buggy days. The covers were bound in raw hide.

The maps were all different, each bringing out its story in a definite way. Tennessee, for example, had a folder of county and state activities, cut out of cardboard, shaped to form the state.

I should like to go on and tell you about each and every one of the thirty-seven exhibits for, as you have learned from the above, I am enthusiastic about them, but I know this article is already too long. I shall just touch on the exhibit of our own state. It consisted of one large poster, displaying a doctor's prescription blank and a small doctor's bag completely outfitted and seven small posters, each showing an auxiliary activity. With these there were also seven samples of products native to our state. This exhibit was admired by many.

I believe that this phase of our auxiliary work is in its infancy, but I do feel that its potentialities are tremendous. It has been difficult to write about what one really must see to appreciate, but I do hope I have helped you to visualize, in a small way, at least the beauty and ingenuity that our national auxiliary exhibits display.

Signed: Mrs. Arthur A. Herold
Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Chairman, Press and Publicity

BOOK REVIEWS

Clinical Roentgenology of the Alimentary Tract: By Jacob Buckstein, M. D. Philadelphia, W. B. Saunders Company, 1940. Pp. 652; 525 illus. Price $10.00.

The author of this volume has had twenty years experience in roentgenology of the alimentary tract at Bellevue Hospital in New York. During this time excellent opportunities existed for comparing the roentgen findings with those in the operating theater and in the autopsy room. The book is fairly complete and an effort has been made throughout to correlate etiology and pathology with the characteristic roentgen findings.

The variations in the roentgen appearances of the normal organs of the gastrointestinal tract are considered. Of value is the author's consideration of differential diagnosis relative to each clinical condition. Italics are employed to stress the points of importance throughout the book. Brief reports and reproductions of roentgenograms of illustrative cases are included.

This work consists of 58 chapters which are divided into eight main sections which consider the following: esophagus; stomach; duodenum; small intestine; large intestine; herniation and eventration of the diaphragm; gall bladder and bile ducts; spleen, liver and pancreas.

This volume is the latest contribution to gastroenterology and roentgenology and any physician interested in the study of the alimentary tract should find it very helpful. The illustrations are excellent and the text is well written. The bibliography is indexed and fairly complete.

J. N. ANÉ, M. D.

Diseases of the Gall Bladder and Bile Ducts: By Waltman Walters, B. S., M. D., M. S. in Surgery, Sc. D., F. A. S. C., and Albert M. Snell, B. S., M. D., M. S. in Medicine, F. A. C. P. London, W. B. Saunders and Co., 1940. Pp. 645. Price $10.00.

It is seldom that one has the privilege of reviewing a volume which has so much to recommend it. The statements contained in this volume are based on experience and on experimental investigation. It may be accepted as authoritative as it represents the cooperative efforts of surgeons and medical clinicians, as well as laboratory workers. It may be considered as one of the best reference books on the subject published. Clinicians will find it a splendid ready reference volume.

The foreword is by the late Dr. Will Mayo. In a few pages Dr. Mayo summarizes the development of the present knowledge of gall bladder disease, and in his own characteristic way states: "Many interesting problems remain to be solved, and the joy of medicine is in tomorrow's answer."

The authors state in their preface: "We have attempted to confine our discussion so far as possible to such matters as are capable of direct practical application. We have had in mind the primary reason for coordinative and surgical practice which is to make available all present knowledge of whatever type, to the individual physician."

In the chapter on anatomy, reference is made to the anatomic variations of the ducts and the vascular supply to the biliary system. The authors refer those interested in this subject to the work of Flint, Eisendrath, and others. For the sake of brevity they have omitted details.

The chapters on the formation of stone, diagnostic methods, and the value of duodenal drainage are particularly interesting and are worthy of careful study.

The chapter by Kirklin on cholecystography is clear, concise, and instructive. This chapter is made particularly valuable because the details of procedure and the significance of the findings following properly done cholecystography are clearly stated.

A great deal of attention is devoted to conditions associated with jaundice, and problems arising as a result of jaundice. The clinical laboratory phenomena which are of diagnostic and prognostic value are explained.

The chapters on medical and surgical treatment of gallbladder disease are of special interest as they emphasize the need for cooperative management of problems involved. There are excellent chapters on vitamin therapy, preoperative and postoperative management, symptoms and complications of gallbladder disease. There is a chapter on technic in the operating room written by Sister Mary Williams of St. Mary's Hospital; this chapter should prove of interest to all operating room supervisors.

This volume will remain a classic of present day knowledge and management of gallbladder disease.

ISIDORE COHN, M. D.

The Management of Obstetric Difficulties: By Paul Titus, M. D. St. Louis, C. V. Mosby Co., 1940. Pp. 968.

The widespread acceptance of the first edition necessitated a new volume into which has been added new descriptive material on x-ray technic, anemia of pregnancy, and the use of sulfanilamide in puerperal sepsis and urinary tract infections. The original part of the book with its clear cut description and treatment of the various abnormalities of obstetrics is retained and serves as an excellent reference.

Particularly noteworthy and of extreme value is the author's description of religious and social problems which so frequently attend obstetric difficulties, and suggestions as to the correct form of dealing with these problems.

HARRY MEYER, M. D.

Surgical Diagnosis: By Stephen Power, M. S. (Lond.), F. R. C. S. (Eng.). Baltimore, Williams & Wilkins Company, 1939. Pp. 228. Price 12s. 6d.

This author divides the considerations of surgical diagnostic problems according to anatomic regions. This book is brief, even short, for such an objective and in this brevity lies one of its main faults. Without much hesitation it might be regarded as cursory and incomplete. There are few illustrations (51). The style, like most English texts, makes reading easy, but this scarcely replaces the lack of detail and definiteness. The highlights and general principles of a subject are covered, but the book is inadequate for a student text or reference.

Howard Mahorner, M. D.

The Newer Nutrition in Pediatric Practice: By I. Newton Kugelmass, B. S., M. A., M. D., Ph. D., Sc. D. Philadelphia, J. B. Lippincott Co., 1940. Pp. 1155. Price $10.00.

This is a detailed reference book on nutrition. It is divided into three sections, namely: nutritional physiology, nutrition in health, and nutrition in disease. The author goes into great detail in all his sections and has incorporated all of the latest and new ideas of diet in both health and disease in the entire field of clinical pediatrics. He has laid stress on the place of vitamins in all the diseases, their need and the dosage.

The reviewer thinks this book would be of value to the general practitioner or to the pediatrician who is not in a position to attend symposia on the newer ideas of diet.

Suzanne Schaefer, M. D.

Frontier Doctor: By Urling C. Coe, M. D. New York, Macmillan Company, 1939. Pp. 264. Price $2.50.

This is a fascinating presentation of the experiences of a doctor when there was truly a frontier. Living 120 miles from the nearest railroad, his clientele extended as far as 85 miles from his home town so that it was nothing unusual for him to make a trip in one direction of 40 miles by horse and buggy, to return home and go 30 miles in the opposite. The book will interest the doctor; undoubtedly it will be of great interest to any layman who is interested in the experiences of a real man who was a physician. Other comments about this book have been made in the editorial section of the journal.

J. H. Musser, M. D.

Health at Fifty: Edited by William H. Robey. Cambridge, Mass., Harvard University Press, 1939. Pp. 299. Price $3.00.

A compilation of lectures given by members of the Faculty of the Medical School of Harvard to Sunday afternoon audiences, condensed in book form, is certainly well worth any patient's time, even if he or she has not reached the sixth decade. The subjects treated in this book are those which apparently have the greatest appeal to the general public.

The presentation of material is clear and in a fashion the majority of the laity can grasp without too much pensive thought. All of the advice and recommendations given are thorough and complete yet presented in such a manner that the reader would certainly not become organ or health conscious. Clarification of medical terminology is one of the oustanding features of the book.

Oscar Blitz, M. D.

The Essentials of Applied Medical Laboratory Technic: By J. M. Feder, M. D. Charlotte, N. C., Charlotte Medical Press, 1940. Pp. 234. Price $5.00.

Dr. Feder, as he says in his preface, has prepared this book to aid the physician, small hospital and small clinic in maintaining at minimum cost, an efficient laboratory unit. With this end in view he gives standard methods for many procedures in laboratory work. They are stated in detail and are accompanied by many sketches and photographs. Emphasis is placed on economy and simplicity. In many instances the commercial brands most advisable are mentioned. The book could be used without confusion by a technician with minimum training. It does not include technics for determining sulfanilamide and sulfapyridine blood levels, without which no hospital laboratory today is complete, and there are various typographic errors—some of which are serious.

On the whole, Dr. Feder has made good use of his long experience in laboratory work in a small general hospital.

Elizabeth E. Munger, A. B.

PUBLICATIONS RECEIVED

The Johns Hopkins Press, Baltimore: Medical Work of the Knights Hospitaliers of Saint John of Jerusalem, by Edgar Erskine Hume, Lieutenant-Colonel, Medical Corps, United States Army, Knight of Honor and Devotion of the Sovereign Military Order of Malta. The Chinese Way in Medicine, by Edward H. Hume.

Lea & Febiger, Philadelphia: Physical Diagnosis, by William Nance Anderson, B. Sc., M. D. Pharmacology and Therapeutics, by Arthur R. Cushny, M. A., M. D., LL. D., F. R. S., thoroughly revised by C. W. Edmunds, A. B., M. D., and J. A. Gunn, M. D., D. Sc., F. R. C. P.

The Macmillan Company, New York City: Getting Ready to be a Mother (Fourth Edition), by Carolyn Van Blarcom, R. N., revised by Hazel Corbin, R. N.

The C. V. Mosby Company, St. Louis: Applied Pharmacology, by Hugh Alister McGuigan, Ph. D., M. D., F. A. C. P.

The Rockefeller Foundation, New York: Annual Report, 1939.

W. B. Saunders Company, Philadelphia: Gynecological and Obstetrical Pathology, by Emil Novak, A. B., M. D., D. Sc. (Hon. Dublin), F. A. C. S.

Charles C. Thomas, Springfield, Ill.: Atlas of Cardioroentgenology, by Hugo Roesler, M. D., F. A. C. P.

The Williams & Wilkins Company, Baltimore: Manson's Tropical Diseases, edited by Philip H. Manson-Bahr, C. M. G., D. S. O., M. A., M. D., D. T. M. and H. Cantab., F. R. C. P. Lond.

New Orleans Medical
and
Surgical Journal

Vol. 93 OCTOBER, 1940 No. 4

FUNCTIONAL UTERINE BLEEDING*

WENDELL LONG, M. D.
OKLAHOMA CITY, OKLA.

A comprehensive discussion of the numerous causes of uterine bleeding is beyond the scope of this presentation which will deal only with so-called functional uterine bleeding, placing particular emphasis upon the acquired menstrual irregularities.

However, it must be clearly understood that careful examination, frequently including diagnostic curettage, must be completed before an individual patient with abnormal uterine bleeding is placed in this category. Particular caution should be observed in regard to malignancy, recent pregnancies and submucous fibroid tumors.

In the presence of such a normal pelvic examination and abnormal uterine bleeding, one must consider the bleeding as a symptom of changes in the uterus, frequently hyperplastic endometrium, secondary to improper function of the ovary, ordinarily associated with faulty ovulation and relative insufficiency in the amount of progestin secretion.

These disturbances in ovarian secretion may be the result of inadequate function limited to the ovary and properly termed intrinsic factors affecting ovarian function. However, it is well established that ovarian function is subject to physiologic influences extrinsic to the ovary. It is directly dependent on the anterior pituitary gland for proper function and any abnormality in the physiologic activity of this gland immediately produces improper function in the otherwise normal ovary with consequent abnormal uterine bleeding. While the relationship has not been proved to be so direct, abnormal function of the other glands, particularly thyroid and adrenal, has a pronounced effect on the ovary with similar result.

In addition, it is a clinically substantiated fact that ovarian dysfunction, with consequent abnormal uterine bleeding, is produced by general diseases such as upper respiratory tract infections, anemia and diabetes, by emotional strain and disturbances, by abnormal fat metabolism and even by climatic changes. Such abnormalities in the function of the anterior pituitary and other endocrine glands as well as general disease, emotional disturbances, and abnormal fat metabolism may properly be termed extrinsic factors affecting ovarian function. In the average patient with functional uterine bleeding, the symptom is usually not dependent upon a single factor but rather upon a combination of intrinsic and extrinsic ovarian abnormalities.

A concept which greatly assists in the understanding of multiple factors rather than a single factor in an individual patient with functional uterine bleeding lies in the fact that there is a fundamental variation in the functional stability of ovaries. On the one extreme there are ovaries which are so functionally stable that menstruation remains normal and uneventful pregnancies occur despite serious general disease and terrific emotional strain. At the other extreme there are ovaries so functionally unstable that the slightest disturbances in general health or emotional life will precipitate menstrual irregularities and sterility. Between these two extremes there are all variations in functional stability of ovaries. A proper recognition of this circumstance in the clinical care of patients with functional uterine bleeding immediately suggests the importance of adequate investigation and attention to general health and habits as well as the judicious selection and application of the indicated glandular therapy.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

In initial or primary menstrual irregularities occurring in puberty near the menarche and those near the menopause, the intrinsic ovarian instability with faulty ovulation and inadequate corpus luteal formation is ordinarily the most important factor. However, even in these circumstances, frequently extrinsic influences have a material bearing upon the lack of proper ovarian activity and their correction is a necessary part of the care of these patients. In acquired functional uterine bleeding, except at the menopause, the extrinsic factors assume first importance and are usually the responsible primary cause of the remote uterine bleeding. Their correction is an essential feature of proper care.

BASIC PRINCIPLES OF HORMONE THERAPY

In the last ten years, our knowledge of ovarian physiology has increased tremendously and with it has come a number of potent, reliable hormone preparations for sale to the medical profession and frequently, I fear, to the public. This knowledge and these products have made the care of functional uterine bleeding far more definite, yet their satisfactory use demands more exact and thorough investigation of each patient than in the days of more or less impotent harmless hormone preparations.

It is, of course, axiomatic that the use, in quantities, of any glandular extract reduces the function of the gland for which it is used in substitution. It is also true that ovarian hormone deficiency may be overcome by proper substitution therapy with correction of the uterine bleeding and a primary distant cause such as hypothyroidism thereby unrecognized. The symptoms, naturally, recur unless the primary cause is removed. It is equally important that the functional uterine bleeding will not be reduced unless the proper hormone is employed and it may be increased by improper choice and administration. Despite these facts, it is an unfortunate experience to see many patients who have had potent endocrine products employed hypodermically, some for very long periods of time, without general examination beforehand and frequently without even pelvic examination. The drug ordinarily employed in these circumstances is one of the estrogenic products, probably because it is the most widely known ovarian extract, and, fortunately, it is usually so poorly chosen that it is not effective and the patient seeks advice elsewhere.

With extrinsic factors playing a role, frequently major in character, in practically all functional uterine bleeding, a minimum investigation is general physical examination after careful history. For a number of years we have added, to our great satisfaction, basal metabolic rate, blood count, and urine examinations, with x-ray of the sella turcica and examination of the endometrium either by punch biopsy or diagnostic curettage in indicated situations. With adequate general investigation of each patient, the use of the indicated potent hormone preparations now available can be of tremendous advantage, as a part of her treatment.

GLANDULAR EXTRACTS

A working classification of glandular extracts used in functional uterine bleeding follows:

A. *General Glandular Extracts*: (1) Desiccated thyroid extract is of principal importance and has been aptly termed the sheet anchor of glandular therapy. It should be given only after careful examination, including basal metabolic rate, and each patient taking thyroid extract should be conscientiously followed; (2) pituitary; (3) adrenal.

B. *Extracts for Ovarian Substitution*: (1) Progestin (corpus luteal) is probably the most valuable in temporary ovarian failure to produce satisfactory secretory endometrium premenstrually. It is best employed by intramuscular injections in the last half of the menstrual cycle in dosages of one to two milligrams two to three times weekly with reduction of amount and frequency of dosage to an effective minimum given near the mid-menstrum; (2) estrin (follicle) which usually increases functional uterine bleeding except in such huge dosages that the anterior pituitary is inhibited and there is a consequent disuse atrophy of the ovary.

C. *Glandular Extracts for Stimulating Ovaries*: (1) Pregnancy urine extracts or anterior pituitary-like hormones. In my hands their use has been particularly irrational and ineffective. They have frequently produced subsequent bleeding of greater degree. (2) Placental extracts as devised by Collip which are occasionally of some advantage where there is reduction in all phases of ovarian sufficiency; (3) anterior pituitary gonadotropic extracts are theoretically most effective in producing ovulation with resultant improved corpus luteal formation. These extracts are, as yet, not well standardized. Their use should be limited to the early part of the cycle. Sevringhaus reports considerable assistance in the treatment of metamenorrhagia. Our rather sketchy experience in this direction has been disappointing. (4) Pregnant mare's serum is also supposed to aid in the treatment of functional uterine bleeding by use in the early part of the cycle with production of better ovulation and consequent improved corpus luteal formation.

D. *Male sex hormone*, testosterone, has been effective in treatment of functional uterine bleeding with small dosages of 10 to 25 milligrams intramuscularly twice weekly. However, there are reports of slight masculinizing symptoms even with these small dosages and many women have an aversion to its use. It appears, according to Abarbanel, to aid in uterine bleeding by direct action on the musculature of the uterus with a blanching and constricting effect.

These preparations, properly employed, together with general medical measures, can be of great assistance. In discussion of uterine bleeding ergot in proper dosage, snake venom, and recently vitamin K must be mentioned.

ACQUIRED FUNCTIONAL BLEEDING

Up to this time I have spoken principally of the initial or primary functional uterine bleeding occurring near the menarche and that occurring near the menopause. There is another rather large and interesting group of patients whose chief complaint is acquired functional bleeding. This implies abnormality in menstruation with a normal pelvic examination in a woman who has, prior to her present illness, had entirely normal menstrual activity. In these patients it must be remembered that the bleeding is ordinarily not a symptom primarily of pelvic or ovarian disease but of extrapelvic pathology which so affects the ovarian function that the ultimate bleeding is an indirect symptom of the primary distant pathologic change.

It is particularly important in these patients that the extrinsic factors be recognized because the abnormal bleeding is ordinarily not upon the basis of any intrinsic failure of the ovary. Fortunately, many of the extrinsic factors, such as upper respiratory tract infection, have a very short duration and the primary pathology is corrected in spite of any ill-advised ovarian extract therapy.

The first question that should, naturally, be asked a patient with acquired functional uterine bleeding is, "What happened about the time that your menstrual irregularity started?" The answer is amazing in that there is usually some definite physical or emotional disturbance which occurred at that time.

ILLUSTRATIVE CASES

The following brief case histories assist in substantiating these concepts in the treatment of functional uterine bleeding:

CASE No. 1

This woman, aged 27, married eight years, was referred by her physician in early September, 1939, after an objectively normal general examination. Her chief complaints were severe dysmenorrhea, menstrual backache and leg ache, and profuse menstrual periods lasting nine to 11 days. These symptoms had been present since menarche. Pelvic examination, blood count and urine examination were normal. It was inconvenient for her to return for basal metabolism when first examined.

Starting shortly before the mid-menstrum, she was given nine intramuscular 1-milligram injections of progestin before her next menstruation. She menstruated for seven days, less in amount, had only slight dysmenorrhea and no backache or leg ache. She then had basal metabolic rate determined and it was minus 15. She was started upon desiccated thyroid extract which she has taken since with an average daily dosage now of one to 1½ grains. She had a reduced number of injections of progestin before her next menstruation, but prior to the last four menstrual periods she has had no progestin, yet the duration has remained seven days, with smaller amounts. There has likewise been no dysmenorrhea, backache, or leg ache. The last of three metabolic rate determinations was zero and we feel that hers is an instance of initial functional uterine bleeding primarily upon the basis of an extrinsic factor, hypothyroidism, despite temporary relief from progestin.

CASE No. 2

This patient was a single woman of 27 who had normal menstruation with no pain until five years before she consulted me in early November, 1939. At that time, she had had aching pain in the right lower abdominal quadrant for five years, worse in the past two years, and there had been an associated bloody vaginal discharge for the past two years.

Six months prior to the onset of these acquired symptoms, five and a half years before my first examination, she was underweight, had gastrointestinal symptoms, and appendectomy was done for recurrent acute appendicitis. General physical examination was objectively normal. Pelvic examination was normal except for a retroversion of the uterus. Basal metabolic rate was minus 2. Blood count and urine examination were normal.

She was given seven 1-milligram injections of progestin starting shortly before what was thought to be mid-menstrum. Her pain in the right lower abdomen ceased and has not returned. Her next menstruation lasted 10 days and was rather profuse. In spite of basal metabolic rate of minus 2, desiccated thyroid extract was started and she has been taking one grain daily since, with no ill effects. Three injections of progestin were given near the mid-menstrum before the next two menstruations. The next menstruation was of nine days' duration. However, the last three menstruations have been of seven days' duration, there has been no intermenstrual vaginal blood and no pain. She has had no progestin before the last two menstruations. We anticipate no additional symptoms and even the possible discontinuance of thyroid medication.

I believe this to be an instance of acquired functional uterine bleeding dependent primarily upon mild hypothyroidism, but precipitated by her recurrent acute appendicitis six months before symptoms appeared.

CASE No. 3

This patient was a girl of 14, who had menstruated normally for three and a half years. However, for six months there had been irregular prolonged menstrual periods, one lasting three weeks. For a year and a half there had been acquired dysmenorrhea, menstrual backache and acne. Shortly before these symptoms had their onset, she had changed her school and had undertaken more strenuous school work. General and pelvic examinations were objectively normal. Basal metabolic rate was minus 20. Blood count was normal except for 8 per cent eosinophils. Urine examination was normal. Desiccated thyroid extract has been effective in controlling all of these acquired symptoms.

CASE No. 4

This patient was a woman of 40, married 18 years, who was referred in early February, 1939, by her physician, because of profuse menstruations lasting from 16 to 23 days each during the six months before she consulted me.

Her general physical examination was objectively normal except for scars from cesarean section eight years before and appendectomy five years before. Pelvic examination was normal except for increase in the size of the uterus to twice normal and slight enlargement of both ovaries. Basal metabolic rate was plus one. Blood count showed red blood cells 4,070,000, hemoglobin 85 per cent, and white blood cells 6,950 with a normal differential. Urine examination was normal.

Diagnostic curettage produced a large amount of thick endometrial tissue. Microscopically there was interstitial and glandular endometrial hyperplasia but no secretory endometrium. There was no evidence of malignancy, and, on curettage, no submucous fibroid tumor could be felt. No treatment was given and the next menstruation was two weeks in duration but the second one after curettage lasted five weeks and was profuse. Five to seven 1-milligram injections of progestin were given before the next three menstruations starting at what was thought to be mid-menstrum. These menstruations were all of four day duration and normal in amount. The number of injections of progestin premenstrually was reduced to three or four but given each menstrual cycle up until about three months ago. The menstruations have been normal, and of four to five day duration with the exception that she "missed" one menstruation in the summer of 1939.

She has now had no treatment of any kind before the last three menstruations which have been reasonably regular and four to five days in duration. I feel she has a good chance of avoiding hysterectomy or radiation with probably only a reasonably small amount of additional treatment.

I regard this as an instance of functional uterine bleeding depending primarily upon intrinsic ovarian deficiency near the menopause.

SUMMARY

Functional uterine bleeding rests not upon the basis of disease in the uterus itself, but upon faulty function of the ovary, usually improper ovulation with a relative reduction of progestin from a poorly-formed corpus luteum. There are extrinsic factors which also affect the ovarian function and in individual patients with functional uterine bleeding there is usually not a single factor but a combination of both intrinsic and extrinsic factors.

A distinction should be made between initial and acquired uterine bleeding and it is in the latter category that the extrinsic factors will usually be in predominance.

Prior to the use of potent hormone products, the minimum investigation is a general physical examination after careful history. In addition, the routine use of basal metabolic rate, blood count, and urine examination is advisable. Examination of endometrium, obtained by punch biopsy or diagnostic curettage is valuable in indicated instances.

BIBLIOGRAPHY

Campbell, R. E., and Sevringhaus, E. L.: Pituitary gonadotropic extracts for treatment of amenorrhea, menorrhagia, and sterility, Am. J. Obst. & Gynec., 37:913, 1939.

Novak, E.: Diagnosis and treatment of functional uterine bleeding, Am. J. Surg., 48:205, 1940.

Rubinstein, H. S., and Abarbanel, A. R.: The use of testosterone propionate in the treatment of dysmenorrhea, Am. J. Obst. & Gynec., 37:709, 1939.

DISCUSSION

Dr. C. H. Tyrone (New Orleans): I wish to congratulate Dr. Long on the excellent results he has obtained in treating patients with uterine bleeding and also wish to commend him on the very thorough and sane preparation and investigation of cases before the indiscriminate use of so-called hormones or glandular preparations.

I was particularly impressed with Dr. Long's statement about the stable and unstable ovary and about anemia and infectious diseases or obesity and so forth as influencing factors in causation of uterine bleeding. Those of us who are constantly confronted with treatment of abnormal uterine bleeding are realizing as time goes by that no one satisfactory hormone has been manufactured or devised to relieve this condition. I am against the indiscriminate use in prescribing and administering many hormone preparations. The greatest good of this practice has been not to the patients but probably to the drug manufacturer.

As to the role of thyroid disturbances, I agree with Dr. Long that they are in most cases factors in abnormal uterine bleeding. I do not believe a patient has to be definitely overweight or have a subnormal, low metabolic reading to tolerate thyroid extract. Of course patients should always be watched for untoward symptoms but with the use of small doses I think any danger is very unlikely. I believe that in the treatment of functional uterine bleeding, in women at or near the age of forty, we should be very careful in the use of glandular extract. I think in those cases any treatment should be preceded by thorough diagnosis and curettage. If this much abused but useful operative procedure is carried out, it frequently gives temporary and often permanent relief without further treatment.

Dr. Hilliard E. Miller (New Orleans): During the past 10 years no problem in gynecology has been the subject of more speculation, romancing and theorizing than the factors concerned in the causation of functional bleeding. An enormous mass of experimental and clinical literature has accumulated expressing claims and counter claims for the various effects of different hormones. Added to this, circulars from the many pharmaceutical houses would have the unwary believe that their biologic preparations were a panacea for all pelvic ailments. The influence of this drughouse propaganda has, I believe, been a pernicious one, as it is rare today to see a patient with functional or even organic diseases who has not received a long and expensive course of "shots" of all the various hormonal compounds.

Too frequently, I fear, such therapy has been administered in a haphazard fashion and without a full comprehension of the physiology of menstruation or the pathology responsible for the anomalies of menstruation. The latter might be illustrated by two cases of the discussor; these two patients had, for a period of several months, received large and repeated doses of estrogenic hormones in an effort to check meno-metrorrhagia. Both of these patients were between 40 and 50 years of age, with definitely tender uteri. A curettement revealed adenocarcinoma of the fundus in a fairly well advanced stage in each case. The chances of cure in these two cases were materially jeopardized by the attending physician not appreciating the necessity of first knowing the reason for the symptoms; second, the time interval between the onset of symptoms and the date of surgery, and third, the possibility of having stimulated the lesion into more active growth by the therapy.

To diagnose a case as one of functional uterine bleeding presupposes that a complete and thorough examination has been made and all possibility of an organic lesion as the cause of the abnormal bleeding has been eliminated. Dr. Long has properly stressed the importance of a general survey of these patients for a diseased condition which might secondarily influence the normal pituitary, thyroid and ovarian physiology.

The sequence of pituitary, ovarian and uterine physiology which coordinate and regulate the normal menstrual cycle and function have been definitely established by experimental work and while clinical application of these findings will not yield uniform results, we can hope for good results in from 50 to 60 per cent of cases. Chorionic gonadotropic hormones have had a wide application because of their relative cheapness. Whether the effects in checking abnormal bleeding are due to their luteinizing influence or a lessening of the estrogenic influence by causing atresia of the active follicles, is not definitely known.

More recently progesterone, an active corpus luteum hormone, has become available. I have had little experience with this biologic drug, but the claims for its influence are founded on definitely established physiologic phenomena.

A recent article by Rock and co-workers on the stimulating influence of small and graduated doses of x-ray to the ovaries is most interesting and from the data submitted, the method bids fair to assist in some refractive cases.

Curettement is definitely indicated in a certain per cent of functional uterine bleeding. This method only eliminates the effect of disturbed endocrine function by removing the hyperplastic endometrium, but if judicious and intelligent hormonal therapy is subsequently instituted, good results may be expected.

Thyroid extract still holds the place of highest respect in the treatment of menstrual disorders. A metabolic rate should be made as a routine procedure in all functional pelvic disturbances and whether the rate is low or normal, large or small amounts of thyroid are valuable adjuncts in the treatment. It is the experience of many gynecologists that better and more uniform results are obtained from the proper administration of thyroid extract than any other hormonal therapy.

In conclusion, I wish to condemn without reservation, the attempts to control with hormonal therapy, abnormal uterine bleeding in women at or near the menopause. The theory of its possible good effects is fallacious and the chances of overlooking dangerous lesions are too great.

Dr. Lucien A. LeDoux (New Orleans): In his presentation, Dr. Long focused our attention on several important points. I should like to amplify and discuss several of these. In my opinion, the calcium determination, hemoglobin and platelet count are important clinical laboratory studies which should be routine. Regarding the diagnosis, I feel that in functional uterine bleeding the endometrial biopsy and the diagnostic curettage are not absolute requirements; as a matter of fact, if we are frank we will admit that the diagnosis is usually made and patients are treated without being subjected to these procedures.

There is no question but that in some patients and particularly when organic disease is suspected, the diagnostic and therapeutic curettage is of much value and should be employed.

In any discussion of functional uterine bleeding, the role played by hormone therapy as a hemostatic agent is very interesting. The fact that the lactating mammary gland has an inhibitory influence upon ovulation and menstruation is well known. On one hand it improves the tone of the uterus and produces vasoconstriction of the uterine vessels. On the other hand it exerts an inhibitory effect on the folliculin secretion of the ovary, this being demonstrated by the amenorrhea of the nursing mother. To date I have had very satisfactory experiences with the use of the combined mammary-corpus luteum extract as a hemostatic adjunct.

In my opinion the ambulant treatment of uterine bleeding is unsatisfactory and such patients should be put to bed.

Dr. Long (In conclusion): I should like to agree with Dr. Tyrone and Dr. Miller that diagnostic curettage is an extremely valuable procedure.

Whether or not one will carry precaution to the extreme and not give any glandular products past the age of 38 is another question. I too am conscious of the danger of overlooking or disregarding malignancy and every care must be taken in this regard, especially near the menopause.

I probably would not have risen to speak again had it not been for Dr. LeDoux's remark about putting the patients to bed. I well remember attending a symposium on functional uterine bleeding lasting a whole day, several years ago. All problems and mechanisms were discussed and nobody said anything about putting the patient to bed. I would like very much to endorse Dr. LeDoux's attitude about the value of bed rest as well as to agree that bleeding and coagulation times are extremely important.

CONSERVATIVE CARE OF ACUTE PYOSALPINX IN YOUNG WOMEN*

B. C. GARRETT, M. D.
SHREVEPORT

ETIOLOGY

Approximately 80 per cent of the cases of acute salpingitis seen in young women are due to the gonococcus, 5 per cent are due to the tubercle bacillus, and 15 per cent are due to other bacteria. These other bacteria are the streptococcus group, staphylococcus and colon bacillus. The salpingitis due to these organisms usually follows instrumentation during a pregnancy. This paper will concern itself with those cases caused by the gonococcus.

Gonorrheal salpingitis is a self-limiting disease. The organism requires oxygen for its continued growth, hence it cannot grow indefinitely in the fallopian tubes. The organisms usually die in the tubes within two weeks after the temperature returns to normal. The affected tubes cannot reinfect themselves, but reinfection can come from other foci, such as the urethra, para-urethral ducts, Skene's tubules, Bartholin's duct and glands, and the cervix. It is hardly necessary to emphasize the fact that these foci should be cleared of infection to avoid recurrence of fallopian tube involvement.

SYMPTOMS

The symptoms of acute pyosalpinx are characteristic; the onset of the pain is rather sudden, is usually bilateral and comes on following the completion of a menstrual period. It is low abdominal in location and may be one-sided (often called honeymoon appendicitis). There is fever of 101° or above. The patient may or may not have had some dysuria, vaginal discharge or other symptoms suggestive of a gonorrheal infection previous to the onset of the pain. Associated with these cardinal symptoms are nervousness, weakness, sweating and an anemia.

DIAGNOSIS

The diagnosis is not difficult and the condition with which it is most likely to be confused is acute appendicitis. It is of the utmost importance to make the proper diagnosis. The patient's history is of value especially if the pain is bilateral and low abdominal, but even this is often misleading in many patients. The pain of acute salpingitis is never in the epigastrium, which is the usual site for most of the pain in acute appendicitis. It is also significant if there is a history of frequent and painful urination associated with a vaginal discharge or other symptoms which denote a gonorrheal infection of the genitourinary tract.

Inspection of the external genitalia is sometimes of value, especially if there is evidence of a urethral or cervical discharge. In early cases, the involved tubes cannot be palpated because they have not become distended with pus; however, even when the tubes cannot be felt, manipulation of the cervix will cause these patients severe pain in one or both lower quadrants. Later on in the course of the disease the large swollen and indurated tubes can easily be palpated.

Of course there is a great deal of rigidity and tenderness and in acute appendicitis the point of greatest tenderness is over McBurney's point or just below, which is somewhat higher than the points of greatest tenderness in acute salpingitis.

If the presence of gonococci can be demonstrated in smears taken from the urethra, cervix or other structures, it is of distinct value. The white blood cell count is not of great importance in the differential diagnosis. There is almost invariably a rapid blood sedimentation time in acute salpingitis.

TREATMENT

Treatment may be either conservative or surgical and it is conservative treatment with which I am most concerned in this paper.

1. *Absolute bed rest:* This is difficult with many patients, due to their lack of finances. This bed rest usually requires sev-

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

eral weeks. Only the very poor or the very rich find it easy to carry out this program. The middle class woman finds it difficult to stay in bed as long as is best for her.

2. *Diet:* This should be bland and well balanced. Fluids, water, and fruit juices should be forced. Intravenous glucose and saline are very helpful when the patient is toxic. Mild laxatives and enemas are used when necessary to get good elimination. Alcoholic drinks, coffee and tea should be absolutely prohibited.

3. *Sedatives:* The symptoms of acute pyosalpinx can usually be controlled by mild sedatives. Opiates are indicated in only a few cases.

4. *Drugs:* Many different drugs have been advocated for use in acute pyosalpinx. In the past, foreign proteins and vaccines enjoyed a great popularity, but the value of these is questionable. Sulfanilamide has been decidedly helpful and should be used in adequate dosage.

5. *Local treatment:* There has been considerable discussion about the advantage of using douches. Most patients are advised to douche if there is a profuse discharge and if there is not too much tenderness. So far we have found this very helpful. During the first two weeks of the infection local treatment is not used on the cervix. Later on when the condition has become less acute, vaginal tampons or even cauterization of the cervix is advised. Bladder irrigations are decidedly helpful in many cases. The Elliott treatment has been used a great deal in the past few years. At times, heat of any kind is helpful, as are cold applications. However, the reaction of the patient is the deciding factor in whether to use heat or cold.

Of course it is not necessary to emphasize that sexual excitement and coitus should be avoided. Frequent pelvic examinations should be avoided because this is often the cause of an acute flare up with an elevation of temperature.

Acute pyosalpinx treated by the above conservative method should be cured in 75 per cent to 80 per cent of the cases. It is well known that acute gonorrhea, or pyosalpinx is a self-limiting disease and the axiom that acute salpingitis is a disease to be treated patiently, expectantly and conservatively is as true today as it was when this observation was first made many years ago.

TYPE OF SURGICAL PROCEDURE

Of course at times some form of surgery is indicated, but surgical procedures should be undertaken only after serious consideration and the exercise of mature judgment. Disturbing a woman's sexual life is a very serious matter. Conservative surgery usually consists of bilateral salpingectomy with the removal of the cornea of the uterus. The uterus and ovaries should be left intact when at all possible. Transplantation of the ovaries has been done, but I am not at all enthusiastic about it. After the abdomen is opened and it is found a mistake has been made in the diagnosis (which has happened to all of us) and an acute pyosalpinx is found, it is best not to remove the tubes, but to close the abdomen and give the patient a chance to respond to conservative treatment.

In chronic pyosalpinx, with the lumen of the fallopian tubes closed, many things have been advocated to make it patent. Various injections have been used, such as injections of argyrol, mercurochrome and 10 per cent turpentine in oil. I have had very little success with any of these procedures. Occasionally it is found that the fallopian tubes are plugged with mucus and sometimes these tubes can be made patent by the injection of lipiodol or air through the uterine cavity. Some men have reported cases in which they did a resection of the closed portion of the tube and transplanted the open part into the uterine cavity. Of course this is done to make possible future pregnancy, but the results from this standpoint have been poor.

Occasionally radical surgery is indicated and if the ovaries are badly diseased they should be removed. If these diseased ovaries are left in the pelvis the patient is usually an unhappy individual; there is a greater tendency toward profuse uterine bleeding and usually surgery will again be resorted to at a later date. If a hysterectomy is done the cervix should be coned out from below and the mucous membrane removed from the cervical stump above.

COMPLICATIONS

The most serious complication is a generalized peritonitis. This is usually fatal and not infrequently occurs. Other complications are tubo-ovarian abscess, abscess in the cul-de-sac of Douglas, abscess of the broad ligaments, pelvic adhesions and perirectal abscess. When complications do arise whatever treatment is indicated is used.

SUMMARY

The conservative treatment of acute pyosalpinx in young women has been discussed and stressed.

DISCUSSION

Dr. Peter Graffagnino (New Orleans): Dr. Garrett has asked me to discuss his paper on acute salpingitis and I can heartily endorse everything he has said in regard to its conservative treatment. Because we know that it is a self-limiting disease, we have, for many years, advocated conservatism in its treatment. From personal experience, we know that in nearly 98 per cent of cases with acute pelvic infection, involvement of the fallopian tubes predominates in the infection; and in more than 80 per cent of these cases we have had not only a symptomatic cure but an anatomic cure as well.

Many years ago, we made it a more or less common practice to operate on these women. However, experience has shown that surgical intervention in the early stage of acute salpingitis is attended by an exceedingly high morbidity and mortality. Therefore, we have made it a rule to investigate four different points before operating upon these individuals. First, that the patient has had no elevation of temperature for at least two weeks after the expectant period of treatment, pointing to the fact that the immunity of the patient is sufficient. Second, that the patient has a normal blood count. Third, that there is no tenderness or rigidity on pelvic examination. The presence of masses is not a contraindication unless there is definite tenderness. No rise in temperature should follow these manipulations. Finally, there should be a marked improvement in the general condition of the patient. If the foregoing precautions are followed, the patient's recovery after surgery is assured.

Nevertheless, if surgery is resorted to, the question of what will be accomplished by this procedure arises. The only possible condition that can be found is inflamed or diseased tubes with involvement of the ovary. The only possible procedure is salpingectomy or oophorectomy and de-sexing of the patient, thereby ruining her chances for fertility and a normal menstrual life. Although, due to damage to the fallopian tubes, sterility is the rule following an acute salpingitis, more than 15 per cent of the severe cases treated conservatively regain fertility. I have had a number of patients in whom a mistaken diagnosis of appendicitis was made and salpingitis found upon operation and in spite of the fact that there was free pus, these individuals subsequently had several pregnancies.

Dr. B. C. Garrett (In conclusion): I appreciate Dr. Graffagnino's discussion, which stated very clearly our position. We have used the same procedure for years. However, I am sorry to say that there are some physicians who are operating on these patients. Why, I do not know; whether they do not know any better, or do it for other reasons, I cannot say. These poor individuals, if you can forget everything else and leave them alone, and put them in bed, will get well by themselves. It hurts my soul to see a young woman de-sexed, her sex life destroyed. When you rearrange her menstrual history you give her another syndrome of symptoms. If this paper would save one woman this year from this fate, I would think my time well spent.

THE ELDERLY PRIMIPARA*

J. S. HERRING, M. D.
NEW ORLEANS

The effect of age on the ability of a woman to bear her first child is a problem which frequently confronts the obstetrician. The lay public is of the general opinion that primiparity in a woman well advanced in the childbearing period presents a rather grave prognosis. Apparently this belief is shared to a considerable degree by the medical profession, yet most accoucheurs can recall a number of occasions on which they have been agreeably surprised by the ease and rapidity with which elderly primiparae have delivered. At such times one wonders whether obstetric difficulties are actually more frequent in such patients, or if they are simply more impressive, because of the age, when they do occur.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

TABLE I

	Incidence of toxemia	Length of labor	Operative incidence	Fetal mortality	Maternal mortality	Maternal morbidity	Size of fetus	Abnormal position or presentation	Contracted pelvis	Cervical rigidity	Postpartum hemorrhage	Twins	Predominant sex
Mauriceau	I			I									M
DeLee	I			I	I			I	I	I	I		
Spain	SI	I	I	SI	SI	I	I	I		Rare	I	I	M
Schulze	I	I	I	A	SI		A (3,248)				I	A	F
Stern	I	I	I	I	I		A	I	I	I		I	
Daichman	I	I	I	A	I		A (3,262)		I				F
Quigley	A			A			A						
Nixon	I			I		I	A						

Legend: I = increased; SI = slightly increased; A = about average.

REVIEW OF LITERATURE

The literature on the subject is not voluminous. Those studies which have been made seem to bear each other out in most incidences, although the interpretations of the different authors are frequently at variance.

There is no general agreement on the age at which the term elderly may be applied to primiparae. Schulze,[1] for instance, considers that the term is aptly applied to those above the age of thirty, while Stern[2] applies it only to those forty years or older. If we consider that the childbearing period begins at about fourteen years of age, and ends at about the forty-fourth year, it seems logical to assume that women in the first third of this period may be considered young, those in the middle third intermediate, and those in the last third old, as far as the childbearing function is concerned Therefore, while it is admitted that any such classification is arbitrary, the series of cases presented in this paper will consist only of women whose initial gestation took place after the beginning of the thirty-fifth year.

Almost all reports agree in that they indicate a higher incidence of complications in elderly primiparae than in the average childbearing woman. Mauriceau[3] mentions a higher incidence of eclampsia. De Lee, more than two and one half centuries later, states that the incidence of toxemia is increased. The figures of Schulze,[1] Stern[2] and Daichman[5] bear this out, but Spain,[6] who, in writing the first American treatise on the subject in 1912 ably reviewed the European literature up to that time, found that the incidence of eclampsia was "insignificantly higher."

There is general agreement among all authors that labor is prolonged and uterine contractions weaker and less efficient. All reports show a markedly increased operative incidence, and Schulze[1] noted that this increased with age (table II), but in doing so did not affect the prognosis adversely. Many factors were cited as the cause for the increased dystocia and operative incidence. Schulze[1] and Daichman[5] showed a definite increase in the number of contracted pelves in this class of patients, while others call attention to the fact that abnormal presentations and positions are much more common. Soft tissue rigidity was believed to be increased, but this seemed to apply rather to the perineum than the cervix, the consensus of opinion being that slow cervical dilatation is due to the relative inertia found in these cases, and not to any difficulty on the part of the cervix itself. The perineal rigidity manifested itself in a longer second stage and more frequent

TABLE II (From Schulze)

	30-35 Yrs.	35-40 Yrs.	40-45 Yrs.
Incidence in per cent of cesarean section	6.9	14.1	33.3
"Easy" labors	20.4	21.9	35.7
Dystocia	14.3	23.2	14.2
Fetal mortality	5.1	8.0	0.45
Maternal mortality	0.4	0	0

lacerations, although mention was frequently made of the role of episiotomy in the prevention of the latter.

Some writers felt that postpartum hemorrhage was more frequent in these patients, and Spain[6] and Nixon[7] showed that maternal morbidity was increased, a finding upon which there was general agreement.

Spain[6] mentions that the fetus is apt to be larger, but Stern,[2] and Nixon[7] and Quigley,[8] show that the size of the babies of elderly primiparae is within normal range.

DeLee's[4] statement that maternal and fetal mortality in elderly primiparae are increased is borne out by the literature in general, although Schulze thought that the 7 per cent fetal mortality in her series compared favorably with the average, and Quigley's[8] mortality of 5 per cent is not very high. Almost all reports show a somewhat increased maternal mortality with a tendency to place the blame on a necessarily increased operative incidence.

While Mauriceau[3] believed that males were born more frequently to elderly primiparae than to the average woman, there seems to be no general agreement in the literature on this.

It is interesting to note that the figures of Schulze[1] and Daichman[5] tend to confirm Meyer's[9] theory that primiparae who marry early and conceive late have more difficulty than those who marry late and conceive early. This they attribute to genital hypoplasia resulting in relative sterility, and in the event of pregnancy, inertia and dystocia due to underdevelopment. Jaroschka[10] propounded the theory that the difficulty in the majority of cases of elderly primiparae was not due to age at all but to the inclusion in this group of women who marry late because of obvious physical defects or conceive late because of genital hypoplasia. In agreement with this Schulze[1] concluded that dystocia is due to complicating factors rather than age, and Daichman[5] noted that in his series no cesarean section was done merely because of the advanced age of the patient.

THIRTY PATIENTS SELECTED AS EXAMPLES

The 30 cases presented here are of women who have borne their first child after having passed the age of 34 years. Twenty-two of the cases are taken from the private practice and eight from the Obstetrical Service of the Hutchinson Memorial Clinic, Tulane University. They therefore represent cases which have been adequately supervised throughout the prenatal course, labor and delivery.

In the prenatal course of the women in this series (table III) the incidence of toxemia was found to be quite high, 33.3 per cent. Under this heading are considered the preconvulsive types of toxemia, regardless of pathologic background. The grouping of these into mild, moderately severe, or severe was arbitrary, depending on the severity of the symptoms. There were no eclamptics in the series. The mild cases were considered to be those which showed any two or more signs of toxemia, however slight, and therefore include a number which showed little rise in blood pressure. These were doubtfully classed as toxic, but even if they are excluded the incidence would still be about 20 per cent, a figure which more closely resembles those given in the literature reviewed and which is definitely higher than the average, 4 to 15 per cent.

The occurrence of nausea and vomiting in this series corresponded very closely to

TABLE III—PRENATAL COMPLICATIONS

	Mild	Moderately severe	Severe	Total	Average per cent
Toxemia	4 Cases or 13.3%	5 Cases or 16.6%	1 Case (Non-convulsive) or 3.3%	10 Cases or 33.3%	4-15
Nausea and vomiting	14 Cases or 46.6%	2 Cases or 6.6%	1 Case or 3.3%	17 Cases or 56.6%	50-60
Hypothyroidism	4 Cases or 13.3%			4 Cases or 13.3%	

that in any average group of pregnancies. The one case classified as severe was never dangerously ill. There was undoubtedly a neurotic factor in this patient, but since the vomiting persisted throughout the pregnancy and required several periods of hospitalization, this classification was thought to be merited.

It was noted that a mild form of hypothyroidism, characterized by a basal metabolic rate of from —10 to —25 occurred in four cases, or 13.3 per cent. This figure corresponds roughly to those reported as average by other workers, but is considerably lower than the 40 per cent found in a larger series of cases of pregnancy in this region.[12]

Factors which could be considered as complicating labor and delivery are shown in table IV. Twenty per cent of the cases studied had contracted pelves of various types. This is very high as compared to the average of 3.9 per cent which Maxwell reported from her study of a large number of cases, and is higher than the figures quoted by Schulze[1] and Daichman[5] in their series of elderly primiparae.

TABLE IV—FACTORS COMPLICATING LABOR AND DELIVERY

	This series	Average per cent
Contracted pelvis	6, or 20%	3.9
Fibroids	4, or 13.3%	
Placenta previa	2, or 6.6%	0.1
Breech presentation	4, or 13.3%	3
Transverse	1, or 3.3%	0.5
Posterior or transverse position	5, or 16.6%	
Cervical rigidity	1, or 3.3%	
Retained placenta	2, or 6.6%	
Postpartum hemorrhage	2, or 6.6%	2.5-6.4

There was an incidence of 13.3 per cent of fibroids, which is certainly greater than the incidence of occurrence in all pregnancies. Stern reports an average incidence of 9 per cent in elderly primiparae.

There were two cases of placenta previa, both of the central type. The occurrence of this complication in general is given at from one in 300 to one in 1,000 in various reports. An incidence of 6.6 per cent as found here is certainly extremely high, but in view of the small number of total cases cannot be given too much significance.

Four of these cases had breech presentations, an incidence of 13.3 per cent. This is not surprising, however, when the increased occurrence of contracted pelves and fibroids in these patients is noted.

There was one case of transverse presentation. No significance can be attached to the resulting incidence of 3.3 per cent in so small a number of cases, except that it bears out the general opinion that such presentations are more frequent in these women.

Sixteen and six-tenths per cent of these patients had persistent posterior or transverse positions of the occiput during labor. There are no figures from which the frequency of this complication in all labors can be computed, but this incidence would seem to be high. This is no doubt due in part to a policy of rather early intervention in the form of forceps rotation in these cases because of fear of fetal damage. Such a policy is liable to criticism but seems justified in the hands of a competent obstetrician.

One case of cervical rigidity of a severity to require Durrhssen's incisions was noted. The incisions in this case were made because of fetal embarrassment rather than maternal indications, and its classification as one of cervical rigidity is doubtful. No study of perineal rigidity was made as this was obviated in most cases by the use of episiotomy.

There were two cases of retained placentae necessitating manual removal. This high incidence in elderly primiparae is noted by several writers.[1, 7]

The two cases of postpartum hemorrhage were both readily controlled. The incidence of 6.6 per cent compares closely to that of 6.9 per cent given by Schulze.[1] Both figures are higher than the average for all pregnancies, a point on which most authorities agree.

TYPE OF DELIVERY

Table V shows the manner of delivery

TABLE V—TYPE OF DELIVERY

	Cases	Per cent
Spontaneous	3	10
"Prophylactic" forceps	13	43.3
Other forceps	4	13.3
Cesarean section	8	26.6
Podalic version	1	3.3
Breech extraction	1	3.3
Operative incidence exclusive of prophylactic forceps	14	46.6

of the cases in this series. The term "prophylactic forceps" has been used to describe the use of outlet forceps on a vertex presentation, occiput anterior position. While technically this is an operative procedure, it has become, justifiably or not, an almost routine procedure in the management of primiparae in the hands of many competent obstetricians. For this reason and because in capable hands it apparently does not increase either maternal or fetal danger and is a procedure offering little technical difficulty, it has been excluded in this study from procedures mentioned under operative incidence.

The operative incidence, thus corrected, in this series was 46.6 per cent. Over half of this 46.6 per cent, eight patients or 26.6 per cent, were delivered by cesarean section. Such an operative incidence seems appallingly high, but was apparently justified as an analysis of the cases will show. Of the eight cesarean sections, two were done because of central placenta previa, a procedure which is not only justified, but which is the only one which can be reasonably used. Two of the cesarean sections were done because of breech presentations in which external version failed. While the pelvic measurements in these cases were normal, it was felt that, since the age of the mothers reduced their possibility of conceiving again, cesarean section was justified because of the high incidence of fetal mortality in breech deliveries, and because the danger to the mother was not greatly increased.

One cesarean section was done in the case of a woman with a borderline flat pelvis and a breech presentation in which external version failed. Here the difficulty of estimating cephalopelvic disproportion due to the breech presentation offered an added hazard to the baby and possibly to the mother. One cesarean section was done because of a borderline contracted pelvis, with failure of engagement of the presenting vertex after a reasonable test of labor. One cesarean section was done because of the general poor health of the mother resulting from previous abdominal operations, and because of her desire, therefore, to be sterilized. One section was done at seven months' gestation because of a severe nephritic toxemia which was apparently verging on convulsions.

The four forceps operations included in the survey of operative incidence were mid or low forceps rotations from persistent occiput posterior or transverse positions, and were done because of failure of the presenting part to progress after several hours in the second stage.

The podalic version was done on the case of transverse presentation. This patient went into premature labor at the seventh month, with a transverse presentation, and the membranes ruptured when dilatation amounted to only about three centimeters. A bag was used in the cervix to secure complete dilatation, and following its expulsion the baby was delivered by version and extraction.

The breech extraction was done on a frank breech. The pelvic measurements were normal. The mother had had an intestinal obstruction one and a half years previously following an appendectomy. While otherwise the age and the abnormal presentation might have led one to consider cesarean section, in view of the adequate pelvis and difficulty following abdominal procedures, the vaginal route was decided upon.

LENGTH OF LABOR

The average length of labor for the 22 patients who delivered vaginally was 18 hours. This compares favorably with that which can be expected of primiparae in general, but it must again be pointed out that early intervention in favor of the baby was the rule in these cases. The longest labor was 43 hours, the shortest 4.5 hours.

Twelve of these patients had been married three years or less, and in this group the average length of labor was 20.2 hours. Nine patients had been married longer than three years and in this group (excepting one woman who used contraceptives until shortly before conception occurred) the average length of labor was 16.6 hours. Both the shortest labor of the series and the longest occurred in the first group. These figures seem to contradict the theory of Meyers[9] that the comparative sterility and dystocia are both due to the same causative factors.

FETAL AND MATERNAL DEATHS

In the entire series there were two fetal deaths, or 6.6 per cent (table VI). One of these followed a difficult mid-forceps delivery through a borderline contracted pelvis and probably represented an error in judgment on the part of the accoucheur. The other was a barely viable (seven calendar months), premature baby delivered by cesarean section from a severely toxic mother. The baby lived for several hours before succumbing. This death was apparently unavoidable.

TABLE VI

	Cases	per cent
Fetal mortality	2	6.6
Maternal mortality	None	
Maternal morbidity	7	23.3

There were no maternal deaths. The maternal morbidity was 23.2 per cent, which represented seven patients, three of whom had a mild pyelitis. The remaining morbidity occurred in vaginal deliveries except in one woman who developed thrombophlebitis 14 days after cesarean section.

WEIGHT AND SEX OF INFANTS

The average weight of the infants at birth, excluding the two pound premature, was seven pounds two ounces.

In the 28 cases where the sex of the infant was recorded there were 16 females, 12 males.

SUMMARY

This relatively small series of cases, considered alone, would probably yield no conclusions of value. However, considered in conjunction with the existing literature, certain facts seem evident. Complications definitely appear to be more frequent in this class of patients, both prenatally and during labor and delivery. These complications in turn necessarily lead to a higher operative incidence, and increased operative incidence would seem inevitably to bring about greater fetal mortality and maternal mortality and morbidity. The increase in fetal and maternal death, however, would seem to depend in degree upon the skill of the attending obstetrician. It is apparently possible to keep the incidence of occurrence of fetal and maternal death down to a figure very close to the expected average for all pregnancies by providing adequate obstetric aid for these mothers.

There is no reason to believe that the normal primipara in the late childbearing age should have more difficulty in pregnancy and delivery than the younger primipara. It follows, therefore, that age alone is no indication for operative intervention in these women. However, due to the frequency of complications, every elderly primipara should be carefully studied, with particular attention being given to the presence of fibroids, cephalopelvic disproportion and malpresentation, in order that these may be treated properly and promptly, especially since mismanagement here may well mean that the last chance for motherhood has been lost to the patient.

The majority of evidence tends to show that the babies born of elderly primiparae are of average size.

There is no proof that one sex occurs more frequently than the other among children born to this class of patient.

REFERENCES

1. Schulze, M.: Labor in elderly primipara, J. A. M. A., 93:824, 1929.
2. Stern, D. M.: Elderly primipara, London Lancet, 2:685, 1934.
3. Mauriceau, F.: Traite des Maladies de Femmes Grosses, Paris, 1683.
4. DeLee, J. B.: Principles and Practice of Obstetrics, Philadelphia, W. B. Saunders, 1938.
5. Daichman, I.: Labor in elderly primipara, Am. J. Obst. & Gynec., 24:127, 1932.
6. Spain, Kate: Childbirth in elderly primipara, Am. J. Obst. & Gynec., 65:421, 1912.
7. Nixon, W. C. W.: Influence of age on labour, J. Obst. & Gynaec. Brit. Emp., 38:821, 1931.
8. Quigley, J. K.: Pregnancy and labor in elderly primiparae: study of over 300 cases, Am. J. Obst. & Gynec., 21:234, 1931.
9. Meyer, Leopold: Les primipares agées, Arch. Mens. d'obst et de gynec., 5:264, 1916.
10. Jaroschka, K.: Labor in elderly primipara, Med. Klin., 22:448, 1926.
11. Adair, F. L.: Obstetrics and Gynecology, Philadelphia, Lea and Febiger, 1940; v. 1, p. 725.
12. King, E. L., and Herring, J. S.: Hypothyroidism in causation of abortion, especially of "missed" variety, J. A. M. A., 113:1300, 1939.

DISCUSSION

Dr. E. L. King (New Orleans): I do not think there is very much to be said except to discuss the points Dr. Herring has brought forth. The main point I feel should be stressed in connection with this paper is that we should not be unduly concerned about the elderly primipara, we mean 35 to 45; the ones 30 to 35 are eliminated from this class because we have so many women who are married late and start their reproductive career between 30 and 35. The main thing is that these patients deserve particularly careful watching. They need no better care, however, than any other obstetric case, if a man is taking care of his job. All obstetric cases require careful and constant attention through pregnancy. As brought out, the incidence of toxemia, breech, fibroids, contracted pelvis, is somewhat increased. Whether that is apparent or real is hard to say from a series of 30 cases. If we watch these women, diagnose in time, supervise carefully during pregnancy and labor and prepare to meet the situation, I think we will be able to get by with practically no maternal or fetal mortality.

As brought out, the two babies lost could hardly be blamed on elderly primiparity *per se*. One was a premature child in a toxic woman and the other baby might have been saved if a different method of procedure had been adopted. That is the main lesson we should learn. Watch carefully, study carefully during pregnancy looking toward relieving of complications, handle with the best of care during delivery and prepare to be more liberal regarding cesarean sections and other types of operative procedure than with other cases, although not indiscriminately.

The increased fetal value in these women should be seriously considered, with increased proportion of difficulties considered, such as breech, fibroids and contracted pelvis.

Dr. J. W. Reddoch (New Orleans): We are grateful to have this subject brought so concretely to our attention. Everyone is of the impression that elderly primiparae offer obstetric problems, especially at delivery. Often we are agreeably surprised at the ease with which a given case terminates. Of the 30 cases here reported, only four had difficult vaginal deliveries, which is a much smaller number than one would expect. Cesarean section in breech cases, where age is a factor regarding future pregnancies, is good practice, especially if there is any question of disproportion.

It is not surprising that transverse presentation, occiput posterior and other malpositions and presentations, placenta previa, nausea and vomiting, toxemia and other complications of the prenatal period, are higher in these cases than in younger patients, because of possible poor genital development and a resulting predisposition to such abnormalities. The surprising thing, however, is the high incidence of contracted pelvis. This could possibly be explained on endocrinologic grounds in would like to know whether Dr. Herring has any plausible explanation of this, especialy in the group that marries late.

Episiotomy and low forceps as a routine on all primiparae is a procedure that is safe in the hands of experienced men. I am quite certain that this procedure has cut the length of labor, the fetal mortality, fetal injuries, and fetal and maternal morbidity. There can be little doubt that perineums are saved, and the chances of postpartal infection, resulting from deep tears are markedly reduced. In my own experience the perineum has not always been as rigid as the vagina small and even though an episiotomy is done the vaginal end of the wound has often extended well above the original cut. Titus emphasizes this point and suggests that the vagina be ironed out in an effort to facilitate the delivery and save deep tears. Possibly the advent of more or less routine episiotomies and low forceps in all primiparae has partially solved the long labor difficulties in women who conceive late in their menstrual life.

Analgesia is important in the management of the first stage, especially where there is cervical dystocia. These women are often nervously upset because of the fear of a long hard labor. They rightfully deserve every consideration that will aid them in seeing their labor to a successful end. This is especially true in the occiput posterior position, for in this condition the labor is often unsatisfactory and even younger women may have more tedious labors than their more fortunate contemporaries with an anterior position. I would also emphasize the importance of adequate fluids and nourishment during this period. It would seem that the age of the patient is of little importance in evaluating the case, or difficulty to be expected in a given labor, but instead the important point is the condition of the birth canal, cervix and pelvis. Sometimes otherwise young women have perineums and vaginas much older than their years would suggest, and are victims of long difficult labors often to the surprise of the attending doctor.

Dr. Walter Levy (New Orleans): I am inclined to think fear of the elderly primipara is a bugaboo handed down through the ages. I am willing to say right here that given a pelvis that is not contracted, a uterus that is not a fibroid one, we should not fear type of delivery from below any more than in the normal young woman. As to contracted pelvis occurring more frequently in elderly primiparae, I am inclined to agree that this goes along with a general hyperplasia.

The question of breech in the elderly primipara brings up discussion. We know that fetal mortality in breech is 6 to 8 per cent. Since the elderly primipara is perhaps having her last chance at a baby, I am rather inclined that section should be elected.

As to toxemia, I think that this toxemia proposition in so-called elderly primiparae is due in a measure to age. These women are approaching the vascular renal age where blood pressure is up and kidneys are not as good as in younger women; add to this the strain of pregnancy, and toxemia is more likely to occur.

Another point is whether the woman is married for any length of time, or recently. The woman recently married is not necessarily the hyperplastic type. I do not think there is necessarily more cervical rigidity.

Dr. Herring (In conclusion): Prophylactic forceps in primiparae has become almost routine procedure with us. There is considerable disagreement as to the advisability of this. However, I certainly advocate low forceps and episiotomy in elderly primiparae.

Increased perineal rigidity is important. There is danger of perineal tears with result of infection. In regard to sedation as a factor in the relaxation of rigid cervices, I heartily agree. We see more rigid cervices in neurotic and nervous women, anticipating difficulty, than from any other cause. We notice that even younger women, afraid of labor and pregnancy, usually have a tendency for the cervix to dilate slowly.

In regard to dry labor, I would say one series reported by a British author tends to show definitely that dry labor is a factor in increased morbidity and fetal mortality. I do not think I can agree with him for the reason Dr. Levy brought out. We need not fear it except where membranes rupture early with malpresentation.

Whether or not elderly primiparae have toxemia more than elderly multiparae, I do not know. There are probably renal and cardiac changes in both. I am of the opinion that probably elderly multiparae show increased incidence of toxemia also.

GERIATRICS*

A SYMPOSIUM

A GENERAL DISCUSSION OF THE PROBLEMS OF OLD AGE

I. L. ROBBINS, M. D.†
New Orleans

In the year of 1914 Nascher[1] coined the term geriatrics to indicate the study of the senile organism. Greatly impressed by the lack of interest on the part of the profession in the senescent and his medical problems; aware of the acceptance of old age as a disease and as a cause of death by the majority of physicians; alive to the notable lack of information concerning the anatomy and physiology of the period of involution and alert to the dearth of relevant medical information concerning the disorders peculiar to old age, he became convinced that if senescence was to receive the consideration it justly deserved it must be given a name and thus bestow upon it legitimacy, dignity and recognition as a medical specialty.

LITERATURE

Since the days of antiquity a voluminous literature concerning old age has accumulated. Most of this literature is of a literary and philosophic nature. The magnificent descriptions of old age; the penetrating insight into the psychologic processes of senescence are a source of admiration and wonder to the reader. Thus for example, Shakespeare in Henry IV has the Chief Justice say to Falstaff: "Do you set down your name in the scroll of youth, that are written down old with all the characters of age? Have you not a moist eye, a dry hand, a yellow cheek, a white beard, a decreasing leg, an increasing belly? Is not your voice broken, your wind short, your chin double, your wit single, and every part about you blasted with antiquity? And will you yet call yourself young?" And to cite yet another example from the Bible: "Now King David was old and stricken in years, and they covered him with clothes and he could get no heat. Wherefore his servants said unto him: Let there be sought for my Lord the King a young virgin; and let her stand before the king and be a companion unto him; and let her lie in thy bosom, so that my lord the king may get heat. So they sought for a fair damsel throughout all the borders of Israel and found Abishag the Shunamite and brought her to the king. And the damsel was very fair; and she became a companion unto the king, and ministered to him, but the king knew her not." Most of the essays concern themselves with rules of conduct and hygiene necessary to the attainment of an advanced age as in the celebrated book, The Art of Living Long, by the Venetian centenarian, Louis Cornaro (1467-1566), in which he stresses sobriety in all things as a means to attain longevity. The conquest of life and the achievement of youthful immortality, has from time immemorial intrigued the thinkers of all nations. Often in the fantastic search for the elixir of life and youth, unforeseen good for the betterment of mankind has resulted; thus the transformation of mystical medieval alchemy into scientific modern chemistry. Also it was the search by Ponce de Leon in 1513 for the fabulous island of Bimini, with its marvelous fountain whose waters would restore old men to their youth and which had wonderful curative powers, which led to the discovery of Florida. In 33 B. C. Cicero wrote his famous "De Senectute" which is considered to be the most graceful moral essay of antiquity. In it he attempts to refute the charges that old age is wretched.

---

*Read before the Orleans Parish Medical Society, April 8, 1940.

†From the Department of Medicine, Tulane University School of Medicine.

Geriatrics had its origin in the year 1724 when Sir John Floyer wrote his treatise on "Medicina Gerocomica: Or The Galenic Art of Preserving Old Men's Healths." Floyer was afflicted with asthma, lived to be 90 years of age, wrote a classic treatise on asthma, and was the physician who advised Boswell's Samuel Johnson to be touched by Queen Anne for the scrofula or the king's evil. The same Samuel Johnson who wrote, "My diseases are an asthma and a dropsy and what is less curable 75 years."

Despite the pioneer work of Nascher, Thewlis and others, interest in geriatrics continued to lag. The lack of spectacular achievement and lasting improvement plus the more remunerative inducements in other fields have been held responsible. Recently however, there has been a resurgence of interest in geriatrics. The reasons for this are several. In the last few years pertinent problems of the population have been poised before the profession for its serious consideration as a medical problem that looms big for the future. The birth rate in the United States has continued steadily to decline. The reduction in infant and adolescent mortality continues apace. The tremendous strides made by preventive medicine have decreased the number of preventable deaths and increased those non-preventable, with the result that more persons now do and will continue to reach old age and consequently succumb to degenerative diseases. And finally the limitation of immigration has cut down tremendously the influx of the young and healthy into the country. The consequences have led to a two-fold situation: First, the total population of the United States is approaching stabilization and possibly beginning to decline; second, the people of this country are becoming, as Dublin states, a "nation of elders." The older population is relatively and absolutely increasing. The report of the committee on population problems, May 1938, states that while in 1930 there were 12 million children under five years of age and six and a half million people over 65 years of age, with the present trend by 1980 there will be six and a half million children under five and 22 million persons over 65 years of age. That this situation must eventuate in tremendous changes in the standards and ideals of the social and economic pattern of the country is obvious. Already old age pensions and legal restriction of child labor are straws in the wind. The older groups will be given increasingly more consideration. They will become a greater influence in political life, and the physicians of the future, because geriatrics will become an important branch of medical practice, will devote their talents to many unsolved problems of senescence.

INCREASE OF LIFE EXPECTANCY

The mean length of life has considerably altered during the past several generations. In the sixteenth century it was 21 years; in Massachusetts in 1800, 35 years and in the United States in 1938 it was 61 years. The increase has been accomplished through the salvaging of life during the periods of infancy, childhood and adolescence. In the latter years of life little of any consequence has been added to the life span. Although soon, we may reach the psalmist's prediction of "three score years and ten" and with perhaps some sorrow and travail an extension to "four score", authorities believe that the life span in humans will never exceed one hundred years. Dublin[2] states that the elimination of the following particular diseases would bring about an increase in the mean length of life to the following extent. No deaths from cardiovascular renal disease would add 7.2 years to the average life of the white male, and 7.5 years to the average life of the white female. No deaths from cancer would add 1.1 years to the male; 1.8 years to the female. No deaths from tuberculosis would add 1.1 years. No deaths from accidents would add 2.1 years to the white male; 0.8 years to the white female. No deaths from diabetes would add 0.2 years to the white male; 0.4 years to the white female. This would indicate the directional effort to be pursued in an effort to affect a prolongation of life. From our present knowledge of degenerative diseases this remains a pious wish to be consummated in the distant millenium.

Geriatrics, Golub[3] states, may be defined as that "branch of medicine dealing with the diagnosis and treatment of diseases peculiar to old age and of other diseases in the light of the peculiarities of old age." The measure of old age is time; time, considered in the physiologic sense rather than the chronologic. Thus progeria may occur in early childhood and ateliosis in senility. Senescence is a problem, individual and distinct, for each person. Consequently the age at which geriatrics should be invoked is variable, but usually 60 to 65 years is accepted.

Geriatrics is based upon three fundamental principles so well enunciated by Thewlis[4]: (1) That senility is a physiologic entity like childhood and not a pathologic state of maturity; (2) that disease in senility is a pathologic condition in a normally degenerating organ or tissue, and not a disease such as found in maturity, complicated by degenerations; (3) that the object of treatment in senility should be to restore the diseased organ or tissue to the state normal to senility and not a restoration to the state normal in maturity.

Charcot,[5] in 1881, indicated the study of senescence from three different viewpoints: (1) Maladies special to old age. Of these may be mentioned: Parkinson's disease, osteoporosis, Paget's disease, prostatic hypertrophy, cerebral arteriosclerosis, and conditions conducive to lowered basal metabolic rates; (2) maladies presenting a special character in old age. Here, Rolleston's remark that "often the organs suffer in silence" must be borne in mind. Quite often appendicitis and pneumonia may be asymptomatic; (3) the immunities, relative or absolute, to certain diseases in old age. The acute and infectious diseases of childhood, as measles and pertussis, rarely affect the old. Barker[6] cites Rolleston and Mayo to call attention to the fact that hypothyroidism is not uncommon. Hence, writes Barker, "old people complaining of lethargy, slowness of thought, tendency to drowsiness, preternatural susceptibility to cold, dryness of skin and obesity" should always have a basal metabolic rate determination.

CLASSIFICATION OF OLD AGE

Old age is of two varieties: First, physiologic or biologic old age (the age of senescence). This is the healthy normal old age. There is a gradual diminution of functional activity corresponding with atrophic and involutionary changes in the structures of the tissues and organs. The inherent vitality of the circulatory and nervous systems are conspicuous. This type is rare. Warthin,[7] in 38 years saw only 25 autopsies in which the diagnosis of intrinsic senile death with the lone finding of myocardial atrophy and inadequacy could be made. Second, pathologic or abnormal old age (the age of senility). This results from pathologic causes produced by hereditary defects, infections, intoxications and environmental accidents. When the pathologic processes hasten the aging of a vital organ or tissue, especially the nervous or circulatory, pathologic old age results. In this type are noted incapacity, pain, suffering, decrepitude, and the individual a burden both to himself and his family.

SYMPTOMS OF OLD AGE

Barker,[6] in a study of 300 patients of 60 years of age and upwards to determine the commoner symptoms of old age and the abnormal findings elicited by physical and laboratory examinations, noted that the chief complaints in the majority involved those referable, in the following order of frequency, to the: (1) nervous system; (2) digestive system; (3) circulatory system; (4) locomotive system. The examinations revealed the most numerous maladies to be in the domain of the: (1) circulatory apparatus; (3) nervous system; (3) locomotive apparatus; (4) digestive system. Oral sepsis, pyorrhea and abscessed teeth were relatively common findings.

The symptomatology of old age is often vague and indefinite. Many conditions are asymptomatic. Pain is often absent or negligible. The temperature rises to lesser peaks and vomiting is frequently absent in disease in old age. Gastric complaints often have a cardiac origin.

TREATMENT

The treatment of the aged is one that calls for tact, sympathy and consideration on the part of the physician for the patient. The old person, standing on the brink of life, is frequently depressed and impatient at the slow results obtained. He is often garrulous, readily fatigued, apprehensive, nervous and suspicious. He is often resolute in his preconceived notions of diagnosis and treatment. He is often overly anxious concerning his bowels. He may over indulge himself in food, but more often partakes of a diet at once restricted, inadequate and unnecessary. The waning of the sexual powers, particularly in the male, often causes much concern. A regimen that makes for functional activity, mental and bodily, postpones the advent of morbid old age. Rolleston[8] aptly remarks that there is "more danger to the individual rusting out than wearing out." Keep the patient occupied and out of bed is the consensus of gerontologists. It is well to remember that alcohol and tobacco in moderate use do not curtail life, and enforced abstinence often creates a morbid state. The physician should avoid attempts at sexual rejuvenation. Urge a life of hobbies or interest in athletic and intellectual matters. Avoid drastic treatment. Use judiciously such sedatives as the bromides, barbital and digitalis as they may induce psychoses which may be mistaken for the mental aberrations incident to brain changes in the senile. Catharsis is bad. For the fecal impaction common to senility and mistakenly considered as obstipation, use lubricating oils and enemata. Avoid strenuous examinations and the correction of inconsequential physical defects. The patient should avoid cold weather and if possible spend the winter in southern climes. Impress the patient and person in old age with the facts that moderation in all things, sobriety, self-control, and calmness are conducive to a happy, useful, contented and prolonged life.

REFERENCES

1. Nascher, I. L.: Geriatrics: the Diseases of Old Age and Their Treatment, Philadelphia, Blakiston, 1914.
2. Dublin, L. I., Cowdry, E. V.; Problems of Ageing; Biological and Medical Aspects, Baltimore, Williams and Wilkins, 1939.
3. Golob, M.: Specialization in diseases of old age: geriatrics, M. Rec., 147:425, 1938.
4. Thewlis, M. W.: Geriatrics, St. Louis, C. V. Mosby Co., 1919.
5. Charcot, J. M.: Clinical Lectures on Senile and Chronic Diseases, London, 1881.
6. Barker, L. F.: Supra videm (2).
7. Warthin, A. S.: Old Age: the Major Involution, New York, Paul B. Hoeber, 1930.
8. Rolleston, Sir H.: Medical Aspects of Old Age, New York, Paul B. Hoeber, 1932.

NERVOUS AND MENTAL ASPECTS OF OLD AGE

T. A. WATTERS, M. D.†
NEW ORLEANS

In the normal person, the brain reaches its maximum weight at 30 years, and the personality functions and capacities reach their maximum development between 40 and 50 years, following which time there is a turning point and regression. We know that maturity in the normal person is that point where the personality reaches its fullest organization and integration, as a result of the formative and training period, and thus, lends itself to features and identifying data from which it can be characterized and predictions made—hence character.

---

†From the Division of Psychiatry, Department of Medicine, Tulane University School of Medicine.

From this point on the personality may live a fuller life, and achieve many things. Nevertheless, from the standpoint of mental make-up, organization, and integration, it remains pretty much the same until the turning point between the age of 40 and 50 is reached, at which time the earliest changes in personality are seen in some patients. As a rule, however, there is flexibility, adaptability, and compatibility, until the turn is made at 55. From this point on at any time, features may show themselves which are considered those of the senescence. A point to be remembered, however, before considering any nervous and mental disorders of this period of life, is the fact that innumerable reactions follow the person into this particular period. For example, psychoneurotic reactions are not rare at this time, especially hypochondriacal affairs, anxiety states, and minor reactions that do not lend themselves to categorical classifications, major psychotic reactions such as depressions, recurring at this particular time as a phase or episode in itself, or more characteristically coming on at the sexual turning point in life when there is an endocrinologic and physiologic readjustment; this is especially so in the female, certain manic reactions that take on a chronic form; schizophrenic reactions that have been more or less dormant, but come out as a result of arteriosclerosis; latent epileptics having shown themselves hitherto by equivalents and petit mal, who at this period begin to have convulsions; psychopathic personalities with or without alcoholism; paresis and taboparesis with psychotic features; chronic encephalitis with Parkinsonism; pernicious anemia, especially some forms with personality disturbances; toxic affairs associated with cardiac deficiency, uremia, and diabetes; the generalized presenile brain involvement called Alzheimer's disease, and the more focal involvement of the frontal temporal lobe called Pick's disease.

DISORDERS ASSOCIATED WITH SENILITY

We must confine ourselves, however, to the disorders directly associated with the senile period, but before going further, it is well to remember several points: First, in some instances it is most difficult to differentiate a senile psychosis from a normal change of senescence; second, it is almost impossible to separate the arteriosclerotic factors from those that are the results of senile processes, in other cases; third, before attempting to evaluate any of these reactions, a knowledge of the prepsychotic personality is necessary; fourth, at one time much consideration was given to classification of the various disorders in the field of psychiatry—whether senile, arteriosclerotic, or otherwise. However, now such fine, and in many cases, impractical distinctions are not catered to. Therefore, at present usually one limits himself to the two broad groups—senile reactions and arteriosclerotic reactions.

Senile changes may show themselves as a difficulty when new circumstances have to be met because of the lack of flexibility and the general slowing of personality functions often revealed as an inability to assimilate new ideas, showing a passivity to anything that might shake their thinking habits developed through the years. In the face of this, may be a remaining, though limited ability to create and combine new thoughts within himself, but not so much those of the other fellow. There is a tendency to empty chatter, monosyllables are used more frequently, and words that modify are found less frequently in the flow of talk. Many old people are highly impressionable, or even hypersuggestible to certain ideas, making them vulnerable to people who appeal to their interests and strivings,[1] quite often leading to a serious liability, inasmuch as they may be preyed upon, or fall into the hands of clever crooks. In the main, all mental tasks become more trying, the failure or success in carrying them out being dependent upon their complexity; activities are reduced calling for an increase in time and effort for their performance so that at times, even the most menial family task meets with failure.

The patient's emotional processes become narrowed, even to a blunting of affection for his family and friends. Other times the emotions become more labile, so that there is an hyper-reaction to trifles, or an overdisplay of joy and sorrow, even to the point of gross discomfort. The altruistic sentiments may be lost, leading thereby to unsympathetic trends for the sufferings of his fellow men.

There is an impairment in the capacity for abstract thinking and with growing egocentricity his thoughts center more upon himself, his body, and its care; in some cases much time may be devoted to health, and new fads for longevity indulged. Thoughts also may follow the path of reminiscence, or they may cater to philosophic contemplations, pertaining to death and the hereafter.

The habits may decline as shown by the neglect of personal tidiness, the disregard of personal proprieties and social conventions. The skills deteriorate, automatic actions slipping into clumsy, undependable ones, and added to the picture may be a tremor that becomes an extremely disturbing factor. Often there is a pulling away to oneself with long periods of isolation. Personal effects may be misplaced, things of no real value are hoarded, and quarrels grow out of supposed meddling on the part of other members of the family. Instinctive tendencies may become manifested in a crude way, and conversation may contain more allusions to sex and its implications; especially so in an individual whose mate is deceased. Personal hazards may not be properly appraised, such as traffic lights, street crossings, and auto driving.[2]

The memory may become fickle, first with regard to names, then progressively other things, especially new experiences. In some cases the memory is so capricious as to recall pleasant experiences, but not unpleasant ones, thus, lending to the development of a state of irresponsibility about personal and business affairs.

In many cases the progress of disturbed personality functions follows the lines of asocial behavior sufficiently to reveal the earmarks of a psychosis. A marked reduction in business or professional pursuits, or a change in character anti-date other symptoms by a considerable period of time, the family rather looking upon these changes as signs of dotage, the results of loneliness, discontent, isolation, or as "just the lack of adaptability of an aged person,"[3] and unfortunately do not recognize the presence of a psychosis before serious harm has been done. Then, slowly but progressively, the change in personality or character is found to be more serious than merely the caricaturing of personal eccentricities. Outward appearance may be good and a pleasant demeanor preserved in the face of considerable changes otherwise. Thus, there is the picture of uneven deterioration which is one of the very worst forms of psychotic onsets. What formerly was economy becomes penuriousness; what formerly was firmness becomes stubbornness; and what formerly was precaution, becomes suspicion and distrust.

The emotional processes may react in extremes, sudden outbursts of anger being frequent, even to the point of murder. On the other hand the emotions may take the form of elation or depression, the latter being associated in some cases with anxiety, in others with agitation, each one carrying with it the possibility of self-destruction.

Suggestibility may be heightened in a negative or a positive way, either form reacting to the patient's disadvantage because of being preyed upon by unscrupulous people. As a result of the former he may find himself at odds with and unjustly treating his own heirs and lifelong friends; with the latter he may become the victim of swindlers. As a result of general slowing up and gross disorders in perception, and the span and intensity of attention, memory fails in all spheres, starting with difficulty in recalling recent events, continuing until finally the recollection of remote incidents is involved, in some cases the person being able to remember only the very earliest events of his life. There may be confabulation or the filling up of the gaps with fabricated material; disorientation in some cases may be complete; confusional states may occur frequently. Often, extreme agitation is a factor, showing itself at times in the form of night prowling or a delirium, during which the patient's activities take on the form or coloring of his former work.

Sleep may become so involved as to have a complete inversion of hours, the patient sleeping during the day and prowling or indulging in an occupational delirium during the night.

Quite frequently there are delusions of being robbed and the family is often implicated. Jealousy feelings, convictions of marital infidelity, persecutory delusions, (especially at night), hallucinations, both auditory and visual may also be present. There are great dislikes or the actual hating of his family, the earliest signs being recognized by the fact that the will has changed, the property transferred, all of such a nature as to jeopardize the reputation and security of himself and his family.[4] Fear of poisoning may keep him from wanting the kind of food he has eaten for years, such belief being frequently associated with the conviction that his family have designs on his money, and, therefore, are trying to rid themselves of him. A grave possibility in some cases is fire-setting, either through carelessness or deliberation. There may be talking sprees and liveliness may flow into a continual restlessness, the restlessness blowing into a picture of continuous activity which if not curtailed may lead to exhaustion.

Sex may become a serious problem, especially in cases where desire has remained, but the capacity is lost. Such patients, especially men, are at times a real menace, being prone to exhibitionism, perversions, or criminal assault, the latter usually being made upon a small child and often ending in murder. In those cases where capacity is not lost, there may be adventures apart from his former standards of behavior. Often there is a sudden becoming "young again," and the marrying of some young woman that is sanctioned or not sanctioned by the family; others also marry but in doing so become the victims of marriage racketeers, who seek his money and property. His whole ethical make-up may undergo changes sufficiently to divest him of the social inhibitions identifying him over the years as a man of character and repute. Thus, he becomes a self-willed person directed towards the "joys he has missed" over the years or those he feels he will very shortly lose.

PHYSICAL DISTURBANCES

Physical disturbances in senility are familiar to all of us; however, a few that deserve special mention are: Vertigo, slowing and harshness in speech, tremor, chorea, convulsive phenomena, bladder disorders, paraplegia and apoplexy. As a rule, there are arteriosclerotic factors present, when there are convulsive or apoplectic signs, but at times these are exceptions.

Arteriosclerotic reactions are also common to the senium and are often quite difficult, if not well nigh impossible, to differentiate from the senile reactions. Such reactions as a rule, show neurologic disturbances that bespeak their presence, and thus show evidence of focal involvement. On the other hand, the reaction may be diffuse in nature and thus fully simulate the senile affair. The prodromal signs sometimes are of long years' standing and precede the more dramatic, disabling disorders. For instance, there may be headache, head pressure, dizziness, buzzing in the ears, scintillating scotomata, and fainting spells occurring some time before convulsions, hemiplegias, hemianopsias, aphasias, or apraxias. In contrast, the complaints may be those of lack of initiative, difficulty in getting started or keeping going, reduction in endurance, and what formerly were simple tasks mentally, now become overpowering ones, causing fatigue and brain fag. Depressive tendencies and anxiety outbreaks may occur. On the other hand the emotions may not settle into any one pattern, but rather become extremely labile and, thus, give rise to serious outbursts of anger or hate, followed often by amnesia. In other cases there may be laughing and crying spells which are out of the control of the patient, and are described as painful experiences, their presence often revealing involvement of the thalamus. There may also be periods of bewilderment, attacks of confusion, and wandering spells.

In some cases, the very earliest sign may be a slow but steady decline in business which speaks for faltering judgment and faulty planning. Others show a decline in personality functions through exhibitions of vulgarity and erotic behavior; others through grandiose ideas and extravagance; through decline in attention to personal hygiene and habits; through disinterest and apathy; through difficulty in concentrating, dulness in grasp, and retardation in general responses; through disorientation, defective memory, retention and confabulation with obviously impaired judgment.

Speech frequently is involved as shown in scanning, slurring, or disturbances in the more symbolic functions that occasion aphasia. Only too often a patient with an aphasia or paraphasia is mistaken for a psychosis; the same for paragraphia. Such a mistake is unpardonable in the average case and points out the necessity for the attending physician to appraise carefully the speech disability and get in contact with the patient through some route that is intact or functioning sufficiently for reception. Also the physician should make careful notes at the time in order to protect the patient and the family perhaps a year or so later in court.

TREATMENT

In considering treatment, it is well to remember a very interesting statement once made by Bleuler: "Senility often becomes a disease only as a result of the sudden cessation of the ordinary attractions of life."[5] The fundamentals of treatment for these reactions I believe rest on this premise—keep patients interested and stimulated in a way that is commensurate with their mental and physical ability.

Their habits must be regulated, the diet well-balanced and carrying sufficient quantities of vitamin B, the emunctories attended to, and the clothing of proper weight and warmth. In arteriosclerotic conditions, reduction of meat and salt is encouraged by certain workers. Alcohol is to be avoided, except in the exceptional cases where it is used sparingly as a stimulant or appetizer. Sex relations, if possible, are thought by many authorities best to be kept at a minimum not only from the standpoint of physical exertion, but also from the standpoint of conservatism of the secretory functions. Steinach's operation has been encouraged in some quarters for certain senile disorders but little consideration has been given to it in psychiatric conditions. In some cases where sedation is needed, sedative baths with warm milk drinks are preferred to drugs. However, at times the inversion of sleep habits, night prowling, or nocturnal deliria may warrant the use of sedatives, and barbiturates are considered the drugs of choice since they are quickly eliminated. Some authorities claim that opium in doses of 0.03 gram administered at night time, will serve to induce sleep, and if used, for a period of ten days to two weeks, will reestablish the normal sleep rhythm. In certain patients, the same authorities feel that two or more doses may be necessary in order to build up the new habit, say doses at six and eight, or doses at four, six and eight o'clock in the evening.[6] My own feeling is that sedatives must be used very carefully, if at all, for the reason that they may be the cause of additional trouble. Bromides certainly should be used with care. Old people do not have the metabolism and excretory functions of younger folks, and thus, may develop toxic effects very quickly. If hydrotherapy is available and there are no medical contraindications to its use, it is the procedure of choice.

Certain patients, because of poor judgment and hypersuggestibility that render them susceptible to business sharks, warrant a legal guardian in order to safeguard their personal and family's interests. In those cases, where there is disorientation, confusional periods, and wandering spells, an attendant is necessary in order to keep the patient from falling and fracturing a hip bone, wandering off at night, possibly meeting with foul play, or being run down by an automobile.

In those cases of extreme agitation, those of depression, with possible suicidal tendencies, those given to emotional outbursts of anger and hate with destructive and homicidal tendencies, those reckless with fire and gas jets, those who are filthy in habits, especially with regard to the emunctories, those who are dangerous because of the possibility of sex crimes, institutionalization is imperative. The mistake is only too often made, however, of putting those persons in institutions who are safe and much better off outside, simply because their children and family do not want to be bothered with them, and those who really should be institutionalized are not incarcerated. By the latter, I refer particularly to senile patients in whom deterioration has progressed in an uneven way—the ethical and sexual functions having become involved, yet their memory and judgment remaining fairly well preserved. Such cases cause untold trouble at times. Granted, however, that institutionalization is necessary, it is to be remembered that an aged person moving from an environment with his set of adaptations of years' standing, into an institution in which there must be an adaptation along set lines, faces a difficult adjustment and the more so, the less psychotic he is. At any rate he should not be left in an institution any longer than necessary. There have been many aged people who would have lived a fuller and longer life had it not been for the designs, intolerance, and selfish motives of children and relatives, and their quickness and eagerness to rationalize the trouble on a psychiatric basis.

In some sections of the country there are homes that are sought after, highly desirable for old people wherein the aged of sufficient means can go, and because of the sympathetic and understanding atmosphere have years added to their lives. In these homes, their lives are reorganized and there is incentive and competition set up on a healthful scale. Along these lines should be mentioned Lillian Martin's work in San Francisco.[7] Her work has grown up around the objective of trying to salvage and reorganize the lives of many old people. She first carries out psychologic tests, in order to establish the patients' intelligence, memory and observation; then studies their life objectives; then finally stimulates them to analyze themselves in this fashion and to make and carry out a plan for the better use of themselves in their remaining years. Her results have been very gratifying and she has come to feel that old people who are non-psychotic and whose physical condition will permit, must be stimulated more and protected less.[8]

In arteriosclerotic patients the statements given above more or less apply. However, to be remembered is the fact that neurologic disabilities are present and additional ones may be in the background. After a cerebral catastrophe, whether it be ischemic, angio-spasmodic, thrombotic, hemorrhagic; whether the lesion is single or multiple, it must be remembered that time is needed, and good judgment must be used, in order not to favor a recurrence of a new catastrophe before the patient is allowed to return to his activities. The return, therefore, must be a gradual one. There should be protection exercised against any profound emotional disturbances, because the blood vascular system may not be sufficiently adaptable to meet them with impunity. As conditions improve, then personal application should be such as to keep the patient reasonably well occupied, but always in a way that is satisfying and within limits of his physical capacity. Iodides still find a place in the treatment of these disorders.

In those cases where a serious neurologic disability, such as convulsions, hemiplegia, or paraplegia, with bowel and bladder disturbances, is present, hospitalization, with specialized medical assistance, and good nursing care is absolutely necessary.

SUMMARY

The problems and management of our old people should be taken more seriously. In some countries they are highly respected and even venerated, especially where the structure of their philosophic and religious teaching is built around ancestry worship. However, in this country we must recognize the fact that our religious and social philosophy, theoretically and practically, has not been such as to meet this issue; thus, we have not been geared to a social set-up that has catered to the aged. In the rush of the group to settle and develop the resources of a new country, and the rush of the individual to acquire financial success and independence as measured in terms of our highly standardized comforts and luxuries, the older members of the family have been taken too much for granted, and when proved troublesome, were emancipated from the family circle in one way or another. The World War and depression, migration to the cities, and building of apartments did not help matters. Slowly the family unit has become smaller and the aged dealt with more intolerably, until they have become a political football and now stand on the threshold of governmental regimentation. Is this for the good, in the face of youth also being regimented by governmental agencies, and also by powerful and evil forces in society, that are known to all of us?

It is thought by many good minds that larger family units, like of old, are needed in our country. The old carry and impart wisdom, and serve a necessary and healthful influence upon the whole family. Certainly a new and better culture can be achieved on this score if both the young and old will make concessions. The old must learn to respect the self-government and judgment of their children, and avoid criticism, rebukes, and parental attitudes of authority; and the young must learn to practice patience and tolerance towards the peculiarities of their aged parents and grandparents.[9]

It might be well, therefore, to encourage the development of this new culture, where the old and young can live more happily side by side. Surely grandparents in the home can be nothing but a healthful and helpful influence to growing children. Their very presence will teach through precept, filial duty, and family responsibility, lessons that are vital to a period where they are rapidly being lost;[10] if our democratic spirit as such is to live, they must be rapidly restored.

REFERENCES

1. Diethelm, Oskar: Treatment in Psychiatry, New York, The Macmillan Company, 1936, p. 288.
2. Noyes, Alfred: Modern Clinical Psychiatry, Philadelphia, W. B. Saunders Company, 1939, p. 293.
3. Noyes, Alfred: Modern Clinical Psychiatry, Philadelphia, W. B. Saunders Company, 1939, p. 290.
4. Billings, Edward G.: A Handbook of Elementary Psychobiology and Psychiatry, New York, The Macmillan Company, 1939, p. 201.
5. Bleuler, Eugene: Text of Psychiatry, New York, The Macmillan Company, 1934, p. 278.
6. Bleuler, Eugene: Text of Psychiatry, New York, The Macmillan Company, 1934, p. 279.
7. Folsom, Joseph H.: Old Age as a Sociological Problem, Am. J. Orthopsy, 10:34, 1940.
8. Folsom, Joseph H.: Old Age as a Sociological Problem, Am. J. Orthopsy, 10:37, 1940.
9. Folsom, Joseph H.: Old Age as a Sociological Problem, Am. J. Orthopsy. 10:37, 1940.
10. Muncie, Wendell: Psychobiology and Psychiatry, St. Louis, C. V. Mosby Company, 1939, p. 41.

THE MEDICAL TREATMENT OF THE AGED

ALLAN EUSTIS, M. D.
NEW ORLEANS

The care of the aged has not interested the medical profession as it deserves. Due to advances in medical science, longevity has greatly increased; owing to the control of epidemic diseases and progress in preventive medicine the number of aged that deserve careful medical attention is constantly increasing. In colonial days the age of expectancy was 25 to 35 years, while in 1936 it had risen to 61 years. Normal physiologic age is senescence, while abnormal pathologic age is senility. The latter is the result of degenerative processes and if the causative factor or factors can be eliminated, it is possible to maintain an individual in a state of senescence, postponing for many years the condition of senility.

"An individual is as old as his arteries" is a frequent quotation, but I believe that this should be changed to—an individual is as old as his heart muscle. While the heart beats there is life, and one dies from failure of the heart, whether it be from trauma, infection, or degeneration. Willius, in an examination of 700 persons between the ages of 75 and 96, found that 45 per cent had no clinical evidence of heart disease, but, he states, "often the heart fails with little previous evidence of myocardial disease and with little of the usual picture of congestive heart disease." Electrocardiographic tracings show no constant changes but brown atrophy of the heart muscle is a well recognized finding in autopsies on the aged, and in my experience the cardiorespiratory test of Frost almost invariably denotes myocardial weakness. By conserving the heart muscle it is possible to prolong the life of many of these patients, who if left to their own resources would suffer from heart strain and early death. Death may be due to an acute infection, to trauma, or to coronary thrombosis, but even in the latter condition, by careful regulation of their daily lives it is possible for such patients to live in comfort for many years. What can be accomplished is evidenced by the following case reports.

CASE NO. 1

A. B., was seen first in 1912 at the age of 70 years with hypertensive heart disease and dilatation; pulmonary edema and congestive nephritis. Withdrawal from business, installation of an elevator in his home and rest resulted in complete cardiac compensation. Death finally resulted from coronary thrombosis at the age of 90.

CASE NO. 2

Miss F., aged 51 years when first seen in 1915, had angina pectoris and definite evidence of cardiac failure from hypertensive heart disease. She still has hypertension but is living at the age of 79 years with no cardiac symptoms, although she has to live a very much restricted life.

CASE NO. 3

Dr. A. L. M. had coronary thrombosis with cerebral embolus in 1919 at the age of 56. After retiring from active work and restriction of activities, he lived a fairly comfortable life until his death from bronchopneumonia in 1939 at the age of 75.

Pepper has called attention to the transient lowering of blood pressure in producing thrombosis not only in the coronary arteries, but also in the cerebral and visceral arteries. Therefore, inasmuch as arteriosclerosis with hypertension is a frequent accompaniment of old age, it is well to bear in mind that artificial lowering of systolic blood pressure by nitrites or other similar acting drugs may be followed by serious consequences. A patient with atheromatous arteries requires a greater pressure to maintain adequate circulation than a normal one, and in such an individual a systolic blood pressure as high as 210 mm. of mercury must be considered normal. I recall instances in my early practice of acute congestive nephritis, the result of such procedures. On the other hand, a systolic blood pressure of 240 or 250 can easily result in cerebral hemorrhage, and all exciting causes of high blood pressure should be eliminated from the daily life of the patient. Not the least of these is the absorption of intestinal toxins, notably tyramin, so careful attention to the diet and elimination is most important.

Many of the aged suffer from constipation, and diverticulosis of the colon is a common finding in these persons; I cannot too strongly urge a constant attention to free elimination from the intestinal tract. Strong cathartics are not well tolerated by the aged and fatal collapse may result from their use. Agar agar, mineral oil and the formation of a habit of routine bowel evacuation by the assistance of glycerine suppositories, or small enemata often can overcome many years of constipation.

Fecal impaction in the rectum is a frequent occurrence in the aged and may be masked by a diarrhea. It seems to me that this is more frequent since the large consumption of bran, but I have no statistics to confirm this belief. An enema of peroxide of hydrogen followed by an oil enema, and later by a soap suds enema often obviates the necessity of digital or instrumental removal of the impaction.

RESPIRATORY DISEASES

Nearly all of these patients suffer from bronchiectasis, the relief of which has been greatly aided by the instillation of lipiodol, but I cannot too strongly advocate the direct introduction of the lipiodol through a laryngeal syringe, rather than by other methods.

Pneumonia, often called the friend of the aged, is clinically quite different from the same disease in the middle aged or young. It is usually of the lobular type, often is not associated with fever or leukocytosis and the physical signs may be hidden by an emphysema. An x-ray examination of the chest will frequently establish the diagnosis, and in such instances I have observed the beneficial effects of diathermy treatments through the affected area. In this connection it may be well to stress the frequency of hypostatic pneumonia as a result of operation or fracture. In such a condition it is most important that the patient's position should be frequently changed, while confinement to the recumbent position must be for as short a time as possible. The aged stand surgery well but postoperative care to avoid hypostatic pneumonia is all important.

It should also be remembered that tuberculosis is often found in the aged, physical signs frequently being hidden by chronic bronchitis, bronchiectasis, and emphysema.

Many of the aged show evidence of a low thyroid function and thyroid therapy will often result in marked clinical improvement.

Paralysis agitans and other neurologic manifestations of the aged are beyond me, but it is well to bear in mind that a patient with apparently senile dementia may be suffering only from poor cerebral circulation due to myocardial weakness. Cardiac stimulation with restriction of physical exertion may completely relieve the condition. Barbiturates taken over even a short period of time may also simulate senile dementia, and should be administered to the aged with caution. An undue lowering of the blood pressure in an arteriosclerotic patient may also result in symptoms of senile dementia.

URINARY SYSTEM

Musser and Phillips found a definite renal deficiency in 70 per cent of patients over 70 years of age, and irritation of the kidneys should be constantly avoided. Ascending infection from an infected bladder, however, is a frequent incidence and treatment by the urologist for an infected bladder, whether from an hypertrophied prostate in the male, or from a cystocele in the female, should be insisted upon.

DIGESTIVE SYSTEM

Severe abdominal catastrophies may occur in the aged with little or no pain. Rupture of a large gall stone into the intestine has often been observed unassociated with pain, and only manifested later by intestinal obstruction. Volvulus and diverticulitis with or without obstruction may also occur with very little pain and no leukocytosis. As Sir Humphrey Rolleston stated: "The organs suffer in silence without any local or general disturbance though collapse may occur."

DERMAL MANIFESTATIONS

Keratoses are very apt to appear, especially in those exposed to the sun, with subsequent development of epitheliomata. I can state from personal experience that if the initial keratosis is protected from the sun's rays by Z. O. plaster, or gloves, it will probably disappear before any tendency to epithelioma develops.

One aspect of the eternal desire for youth is the effort to maintain the appearance of youth. At what age will men and women admit that they are old enough to have bodily, or mental ailments needing treatment by a geriatrist; how long will a man or woman consciously or unconsciously postpone the day of seeking advice from a specialist in decrepitude? There will be no need for specialists in geriatrics when the general practitioners begin to give the same attention to the ailments of the aged that they give to younger patients. Let us be sympathetic and optimistic with our old patients, our reward being improvement of their general condition with fairly comfortable prolongation of life. They are extremely grateful for any attention and are less exacting than the younger or middle aged.

SUMMARY

1. The aged present many interesting features for investigative medicine.

2. The aged deserve more careful and routine observation than is usually given them.

3. By careful, optimistic regulation of the daily life of the aged many years of comfort and happiness may be bestowed upon them.

SURGERY IN THE AGED

ISIDORE COHN, M. D.†
NEW ORLEANS

Since the dawn of civilization, history has recorded changing attitudes toward the aged. Physicians in all times have expressed opinions with reference to management of disease in the older group. In 1665, John Smith published a small monograph entitled "A Pour Tract of Old Age." "Let none give over their patients when they become overburdened with infirmities of age, as though they were altogether incapable of having any good done unto them. Those that are negligent towards their ancient friends, are very near of kin to those inhuman barbarians and Americans who kill and devour them."

With the ever increasing division of medicine into specialties and the demand for greater knowledge of each one, we find in 1914 Nascher coining the word "geriatrics" with a view of considering the management of the aged as a definite specialty. Since that time, the literature of all branches of medicine has had an increasing number of presentations devoted to this subject. The history of the development of geriatrics is interesting, but only those phases which have to do with the question of its evolution in so far as surgery is to be applied to the aged, concern this particular presentation.

Before undertaking a discussion of geriatrics from any standpoint, we must see what theories have been evolved with reference to the aging process.

In 1839, Carl Canstatt stated that "aging was the death of individual cells, that is, so much molecular death of the organism which was not replaced."

In 1928, A. S. Warthin in the Carpenter Lecture before the New York Academy of Medicine, expressed practically the same view. His hypothesis is "old age is to be considered as a normal, major evolution, and not as a pathologic process." Warthin divided the life of man into three parts—evolution, maturity, and involution. According to Warthin: "It is the story of a living multicellular organism, a chemical physical machine; transforming, storing, and releasing energy, capable of building up and restoring its own substance, and repairing its wear and tear damage within certain bounds, but only for a limited period of time."

Simply put, the theory represents the human organism as capable of growth, repair and decay. The rapidity with which decay or involution processes begin is not dependent entirely on chronology, but it is increased by insult to the organism through disease contracted, and by methods of living.

Old age has been variously defined. Phelps says, "When a man's mind is filled with theories and reminiscences instead of anticipation, then he is growing old."

A letter written by a lady to her pastor expresses very well the differences between the aging process and chronology: "This is an old lady writing to you. At least, the house she lives in is eighty-two. Considering its age, the house is in thoroughly good repair, though I don't think it looks quite as well as it did fifty years ago. I have neglected to keep it painted, as so many women of this generation do. To tell the truth, I have been spending my time on interior decorations. The windows I look out of are fairly clear, and I am glad to tell you, I have a reliable tenant in the upper story."

---

†From the Department of Surgery, Louisiana State University Medical Center.

This is a rather familiar experience to the surgeon. It is the condition of the patient, rather than the age, which is the determining factor in operative mortality on the aged. Surgery in the aged is complicated by past experiences to which the body has been subjected. Considering the subject of surgery in the aged, it must be remembered that there are only a few diseases not noticed in this group. The approach to the management of the aged, when surgery is indicated, demands a most scrupulous survey of the individual's reserve power. Statistics indicate that there has been a definite increase in the length of life. From necessity, changes in the age composition of the population alters surgical indications, as advancing years are associated with certain groups of diseases, not regularly found in younger groups.

Statistics indicate that the life expectancy in the United States has changed remarkably in the last century. In 1850, the life expectancy for white males was about 39 years. By 1930 the average duration of life had increased to nearly 59 years. In 1850 the total population of the United States was about 23,000,000. Of this number less than 1,500,000 reached the period between 50 and 64, and only six-tenths of a million were over 65 years of age. In 1930, of a total population of nearly 123,000,000, 14,000,000 reached the ages of 50 to 64, and 6,600,000 were 65 and over. In other words, in 1850, the population between 50 and 64 was 6 per cent. In 1900, this had increased to 9 per cent, and by 1930, the percentage of the population between 50 and 64 years of age had reached 11 per cent. The increase in population over 65 had advanced between 1850 and 1930, from 2 per cent to 5 per cent.

Thompson, from the Mayo Clinic, reported 1200 patients more than 50 years of age on whom he had done transurethral prostatic resections: 87.6 per cent of the patients were between 70 and 79 years; 9.6 per cent were between 80 and 84. Of the 1200 cases, only 20 patients died while in the hospital; that is, a percentage of 1.6. Morton, Bailey, and Barney Brooks have reported on their experiences in operations on patients between 60 and 70 years of age, and their reports do not indicate that there is any truth in the popular belief that advanced age is a contraindication for the employment of operative treatment of the aged. Recently, J. Bayard Clark of New York reported having done a suprapubic prostatectomy on a man 110 years of age. The patient was living and apparently comfortable one year after the operation.

It is wise for us to accept as an attitude that no patient is so old that he should be condemned to invalidism because of his age. One does not know how many years the individual may survive in comparative comfort. With the increasing number of the population reaching a higher age limit, a greater proportion of the population enters the cancer age; more genito-urinary conditions, particularly prostatics, need surgery; more diabetics with arteriosclerosis; more cases of gallbladder disease, and in women, more cancers of the breast must be treated.

The increasing facilities for obtaining information with reference to the reserve power of the individual has increased the safety of surgery for the aged. One does not approach, at the present time, the prostatic, the fractured hip, the aged diabetic with gangrene, and the other common surgical conditions with the same misgivings that he approached these same cases twenty years ago.

As long ago as 1933, I presented certain observations on urgent surgery in the aged. Many of the conclusions at which I arrived at that time, I believe in as firmly now as I did then. All who have written on the subject of surgery in the aged have stressed the importance of proper preoperative preparation, the proper selection of the anesthetic and the anesthetist, and the need for the application of surgical judgment and gentleness in handling. Surgery in the aged requires attention to certain details, even more meticulously than in the average adult patient. Of necessity, it requires careful study of the patient's reserve power before operating. This means that the patient should be in the hospital under observation for a longer period than the ordinary elective operation in a young adult. A more detailed investigation of the patient by means of blood chemistry, particularly liver function tests; kidney function tests; electrocardiograms; and a careful elimination of oral infection to decrease the probability of a spread to the respiratory tract, is indicated in the aged. In the male, it is particularly important to investigate whether the patient has a prostatic hypertrophy before any elective operation is done. By observing this last precaution, the danger of having difficulty passing a catheter after operation may be avoided.

CHOICE OF ANESTHETIC

The selection of the anesthetic in the aged is particularly important; however, I believe it is more important to be certain that one avails himself of the services of an expert anesthetist. Failure to select the proper anesthetic, failure to have the anesthetic which is given, given with as much expertness as is possible, may be a determining factor against the aged patient. Care must be exercised that as accurate a diagnosis before hand be made as possible. Prolonged exploratory procedures and unnecessary operative procedures add to the risk in the aged patient. Nowhere is directness of approach, knowledge of anatomy, gentleness of handling, and the adoption of a minimum amount of procedure which will adequately correct the disability, more necessary than in the aged. Time saved, not by prize-ring tactics, but by skillful performance in as short a period of time commensurate with safety, is indicated in surgery applied to the aged.

Recently Fred Rankin concluded as follows with reference to this subject: "Much evidence has accumulated to show that elderly people tolerate surgery surprisingly well. Careful preoperative investigation and preparation are of vital importance in the success of surgery in these people. Upon surgical judgment depends the matter of when, what, and how much to do. Postoperative care must be as meticulous as the preoperative preparation in order to forestall complications wherever possible."

SUMMARY

Urgent surgery in the aged differs in many respects from similar surgery in young people. Surgery in the aged calls for the application of a combination of technic and judgment. Age is bound to be associated with certain organic changes which diminish the body reserve and resistance. Approach to surgical problems demands as nearly an accurate survey as possible, so that surgical intervention will be attended by a minimum risk. In the operating room, lost motion, either from lack of preparation for contingencies or indecision, is inexcusable. Surgical consultations at the operating table are usually ill-advised and time consuming. They are usually harmful to the patient.

Surgery in the aged is often delayed too long. With proper preoperative investigation, proper preoperative preparation, and careful selection of the anesthetic and the anesthetist, the average aged individual can be operated on with relative safety. Insulin, the proper use of glucose, and in the near future, the use of heparin, increase the safety of surgery in the aged. Above all, if one will have as a guiding thought for himself, that no one is so old that he must be presumed beyond the possibility of avoiding permanent invalidism, then more surgery will be done intelligently, and the mortality rate diminished.

After all, our point of view is bound to change. What is youth to one is age to another, and what is age to one is comparative early life to another. After all then, we must realize that with a definite lengthening of the span of human life, there are increasing demands for safe surgery in those reaching the autumn of life.

MEDICINE AS A VOCATION

SHIRLEY C. LYONS, M. D.
NEW ORLEANS

The practice of medicine must be viewed, first, in its large aspects of service to humanity, and secondly, in its opportunities for financial and social reward. One contemplating medicine as a career must be an idealist, an individualist. He must be kind, sympathetic, bold to a certain degree, and at the same time possessive of a sense of humility; and, with it all, he must possess a sincere desire to help and understand suffering humanity.

First, let us consider a few facts regarding the number of physicians now in the field, the number of students in medical schools, and the average income of physicians. In 1935, the 77 medical schools graduated 5,101 students. Considering that the average death rate among physicians is 3,500 per year, this leaves, on the present basis, an increase of approximately 2,000 physicians each year. The average age at death among physicians is 64 years. The average number of years of active practice is 37. The number of physicians in active practice in the United States, in 1934, according to the American Medical Association Directory, was 161,359. The average income of private practitioners is $5,467, while that of salaried physicians is $4,524. It is estimated that the cost of conducting a medical practice is 40 per cent of the gross income; for example, if a physician is making a total of $5,000 per year, he must deduct 40 per cent of that for operating expenses, leaving him a net income of $3,000.

The average physician beginning practice at the age of 28 is estimated to require about seven or eight years to become established. He reaches the peak of his income from the seventeenth to eighteenth years, after which the income declines, until in the twenty-fifth year of practice it is approximately the same as that of the eighth year. It is estimated that 7 per cent of the total of medical service rendered is free. The median gross income for physicians is highest in cities between 25,000 and 50,000 population, where it is $9,308; thus, for the average physician the medium sized city offers the best opportunities for an adequate income. We wish to call to your attention the fact that for every physician with a net income of over $10,000 there are two who receive a net income of less than $2,500.

The preparation required in order to become a physician is as follows: A diploma from a recognized high school, three years of pre-medical work in college, four years of medicine, one to two years of internship, all of which is completed by the average boy or girl at the age of 25. After the internship, there should be one to four years of postgraduate study, which brings the average individual to the age of 30 before launching on his career. During this period, there is an investment of at least seven years in college, costing from $7,000 to $10,000, and one or two years of internship, costing about $2,000. The total cost or investment, therefore, is approximately $12,000. In our own city, New Orleans, Louisiana, Tulane University requires three years of pre-medical work, at an average cost of $300 per year. The total cost of the four years of medical school is around $2,188. These amounts, however, represent only the tuition and laboratory fees, and do not include the cost of books, instruments, and other materials, which add to the total amount considerably. Louisiana State University also requires three years of pre-medical study. For a resident of Louisiana, the cost of pre-medical education ranges from $327 to $580 per year for men students, and includes fees, books, room and board, and other incidental expenses. The cost is slightly higher for women students. Students from out of the State have to pay an additional sum of about $60 per year. For the four years of medical school, a resident of Louisiana pays a fee of $137 per year, in addition to which there is an approximate cost of $85 per year for books and materials. For the first year of medicine we must add the cost of a microscope which is about $157.50. Board ranges around $35 per month up. Students from out of the State must pay a tuition fee of

$400 per year in addition to the other expenses listed above.

It is believed that with careful planning and strict attention to his practice a physician should be able to make ends meet after two years in practice, and should be comfortably established within seven to eight years. The successful physician is more or less a slave to his profession and to the general public. He has little or no time that he may call his own. He is summoned from his family, from social obligations, at any and all times. Each patient feels that he is the physician's only obligation, and it is seldom that a patient stops to consider the physician's viewpoint when he places a call at 10 or 12 o'clock at night, or even in the early morning hours, when this call might easily have been placed in the late afternoon or early evening. The same thing applies to many so-called "urgent" calls, which often means that the physician must respond at inconvenient times to an illness of hours or even days duration.

A physician must be sound physically and mentally. You can realize what a great handicap it is to a physician who enters the profession with a physical impairment. Any boy contemplating medicine as a career should begin to discipline himself early in abstaining totally from alcohol. There is no place for indulgence of this sort in a doctor's life. In compensation for the degree of perfection required of a physician, I feel free to say that the average doctor works under conditions that are more or less above the average for any other profession. It has been recommended that the following points be given careful consideration by one entering the medical profession: A balanced emotional life, a resolute will, good breeding, good taste, agreeable behavior, tact, and last but not least, a financial standing which will not cause him to be too hard-pressed at every turn.

Reviewing the records of students in the medical school of a certain university in an attempt to study the occupations of these students' fathers, it was found that out of a class of 458, only 82 students had fathers who were physicians. This a percentage of 17.9. In another university, out of 401, only 49 students had fathers who were physicians. This is a percentage of 12.2. It is obvious from this study that it is not necessary for one to come from a family of physicians in order to be successful as a physician. It is not necesary to be financially independent in order to study medicine, but a reasonable amount of financial backing is highly desirous.

In submitting a questionnaire to several established physicians, asking them what prompted the study of medicine, I believe the following reply to be a fairly satisfactory explanation: "My father was a farmer. I took up the study of medicine because of the appeal of the sensational and spectacular impression I had of medicine and its practice, especially that of surgery. Like most all other young men entering medicine, my ambition was to be an operating surgeon. I am glad that after a few years in practice and graduate study I became interested in medicine from an entirely different standpoint and with an entirely different objective, viz., humanitarian and helpful service to others." Many replied that they were inspired by their local family physician.

After one has entered into the sphere of medicine, there are many opportunities which present themselves, such as, private practice, various specialties, teaching, research work, public health work or state health work. I can say without fear of contradiction that there is no other profession that offers a greater future in giving service to humanity than medicine. Success, especially in medicine, is a factor dependent on the individual, and to forecast success or failure in an individual is illadvised. I might add, however, that the competition is extremely keen, incomes greatly reduced, and rewards are diminishing; also, the profession is becoming less alluring to those who enter it with primarily economic motives. Opportunities still exist, however, for the person who desires first to be a physician, and regards financial success as a secondary, although necessary, consideration. Success in medicine demands more than ordinary understanding of human nature and sympathy with its failings.

RECONSTRUCTION OPERATIONS FOR FRACTURE OF THE NECK OF THE FEMUR WITH NON-UNION*

RUFUS H. ALLDREDGE, M. D.†
NEW ORLEANS

The fundamental purpose of this paper is to stimulate further interest in the operative treatment of non-union of the neck of the femur and to point out the necessity of individualizing each case according to the general and local conditions present.

Renewed interest in the treatment of fresh fractures of the neck of the femur in recent years has resulted in a simultaneous interest in management of non-union following these cases. In this connection it would be of some interest to trace briefly the evolution of the treatment of fracture of the neck of the femur.

According to Orr,[1] Nicholaysen, in 1897, treated fractures of the hip with pins and obtained good results. His technic, Orr said, differed little from that of the present day. Orr also stated that E. G. Davis of Philadelphia, as early as 1900, advocated the use of wood screws in these cases and obtained good results. Despite the work of these pioneers, fracture of the hip was generally neglected and non-union usually resulted until Royal Whitman proved without a doubt that fractures of the hip were amenable to treatment. Whitman's method of closed reduction and fixation in the abduction plaster became a standard method of treatment for many years. Solid bony union was reported from this method of treatment in from 15 per cent to 65 per cent of the cases.

E. D. Martin[2] began using wood screws for internal fixation in 1920. Smith-Petersen's[3] work, started in 1925 and published in 1931, resulted in the universal popularization of internal fixation for fresh fractures. It is generally agreed at the present time that the use of some type of internal fixation is the method of choice.

The Fracture Committee of the American Academy of Orthopedic Surgeons[4] recently made a preliminary report of its investigation of the results in fresh fractures of the neck of the femur in which internal fixation was used. In 1485 cases reported by one hundred orthopedic surgeons between 1903 and 1938, 11.6 per cent non-union occurred. The Smith-Petersen nail was used in most of the cases. These figures may later be subject to change but they indicate a decrease in the percentage of non-union in cases properly treated.

Not all cases of fracture of the neck of the femur receive early treatment of this type, and, it is for this and other reasons that non-union of the femoral neck will be a common condition for some time to come. It should be remembered that aseptic necrosis of the head is an uncontrollable factor which may give rise to poor results regardless of the method used.

CHOICE OF TREATMENT

There are many factors which must be taken into consideration in making a decision in the choice of treatment to be carried out in any case of non-union of the neck of the femur. The age of the patient, the general condition especially in regard to the heart and kidneys, the amount and nature of his activities and his social status should all be carefully considered. Also of importance is the amount of absorption of the neck, the duration of the non-union, the size and condition of the head of the femur as determined by x-ray studies, the condition of the acetabulum, and the condition of all the elements of the hip joint.

For purposes of this discussion the management of non-union of the neck of the femur may be divided into four groups.

Group 1. Cases in which the femoral neck is approximately normal and the head is alive.

Group. 2. Cases in which there is absorption of the neck of the femur with a normal or approximately normal head.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

†From the Department of Surgery, Division of Orthopedic Surgery, Tulane University School of Medicine, and the Tulane Orthopedic Service of Charity Hospital at New Orleans.

Group 3. Cases in which there is absorption of the femoral neck and aseptic necrosis of the head of the femur.

Group 4. Cases which are poor surgical risks or in which there are arthritic changes in the joint with or without absorption of the head and neck.

Because the exact condition of the head and neck of the femur is so important in determining the procedure of choice, it is imperative that preoperative x-rays be taken in such a way that the length of the neck and the condition of the head may be determined as accurately as possible. For this purpose, preoperative x-rays should be taken in full internal and external rotation, and in abduction and adduction. Only in this way can one determine with any degree of accuracy the amount of absorption which has taken place in the neck. For the criteria as to whether the head of the femur is dead or alive, the reader is referred to the excellent article of Phemister.[5] Time does not permit a detailed elaboration on this point. It must be remembered, however, that not infrequently one may not be able to decide exactly which procedure is most suited to the particular case until the hip joint is opened and the exact nature of the component structures of the joint determined by actual inspection. Because of this, the patient's permission should be obtained to perform the operation of choice after the hip joint is opened.

GROUP 1
CASES IN WHICH THE NECK IS OF NORMAL LENGTH WITH NO RESORPTION AND THE HEAD VIABLE

It is important in this group to follow closely every patient with fracture of the neck of the femur while under treatment. By the end of three to six months one should be able to determine the success or failure of primary treatment in most cases. If there is evidence of absorption at the fracture site, resorption of the neck and lack of evidence of bony union, one should immediately extract the metal fixation and insert a massive bone graft or a section of the fibula. Internal fixation with metal of some type in addition to the graft has been advocated by some recent authors. The additional metal fixation is said to facilitate early ambulation so that plaster fixation is unnecessary.

Albee[6] as early as 1913, described the use of the tibial bone graft peg for non-union at the hip, and in 1929 reported 91.7 per cent of bony union by this method. Campbell[7] in 1931 reported close to the same percentage of bony union and in 1932, in a series of ten cases, reported bony union in 100 per cent of the cases. Henderson, using the fibular graft, reported 70 per cent bony union in 58 cases. If these figures are correct, and I do not doubt that they are, the results from the bone graft, either the shaft of the fibula or the massive graft from the tibial crest, results in practically as high a percentage of bony union as in the cases of fresh fractures treated by the best methods with which we are familiar. These results have led Albee to recommend the use of the autogenous tibial bone graft peg in all suitable cases of fresh fractures of the central portion of the neck of the femur, reserving the manipulative methods, the Smith-Petersen nail, wires, screws, and other metals for those cases in which open reduction of the hip joint is not considered wise. In short, it may be said that the bone graft operation is the method of choice in all cases of non-union in any portion of the neck when the neck is unabsorbed and the head fragment is viable and of sufficient length to receive the graft.

GROUP 2
CASES IN WHICH THERE IS RESORPTION OF THE NECK OF THE FEMUR AND VIABLE FEMORAL HEAD

In this group of cases the neck has undergone resorption and even if union of the fragments could be brought about, the abnormal mechanics due to loss of the neck would give undesirable results. Attempts to bring about direct union is, therefore, not advisable. The normal femoral head should and can be utilized to the patient's advantage. When this state of affairs exists, there are three operations at the surgeon's disposal. They are: Brackett's reconstruction operation, the Magnuson modification of Brackett's operation, and Luck's operation.

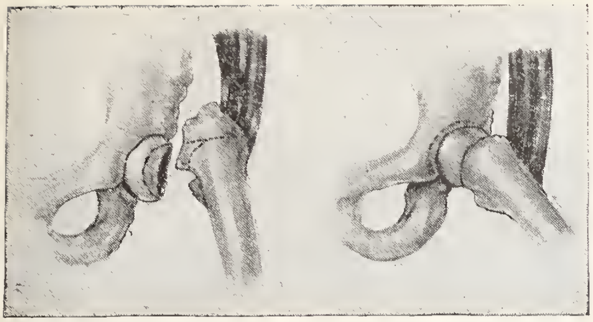


Fig. 1. Brackett's reconstruction operation, indicated in cases having resorption of the femoral neck and a viable head.

Brackett's[8] operation represents the original attempt to restore union between the upper shaft of the femur and the femoral head when the neck is absent. The abductor muscles are removed from the trochanter, the tip of the trochanter is removed and discarded, the head is hollowed out, and the upper inner aspect of the femoral shaft is freshened and inserted into the hollowed-out head. The abductor muscles are reattached lower down on the shaft of the femur with the hip in abduction. Apposition of the fragments is maintained by immobilization in plaster. The results of this operation have been reported as being favorable and it is indicated especially in young people.

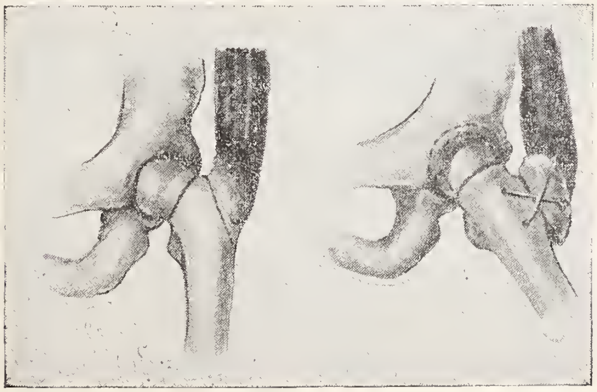


Fig. 2. Magnuson's modification of Brackett's operation.

Magnuson's[9] modification of Brackett's operation has given excellent results in the originator's hands. Magnuson reports that he has performed this operation on fresh fractures as well as on cases of non-union, with equally gratifying results. In this operation the head is hollowed out, the neck reshaped and the trochanter with the abductor muscles transplanted downward on the shaft of the femur. The reshaped neck is put into the hollowed-out head and fixation is brought about by immobilization in plaster.

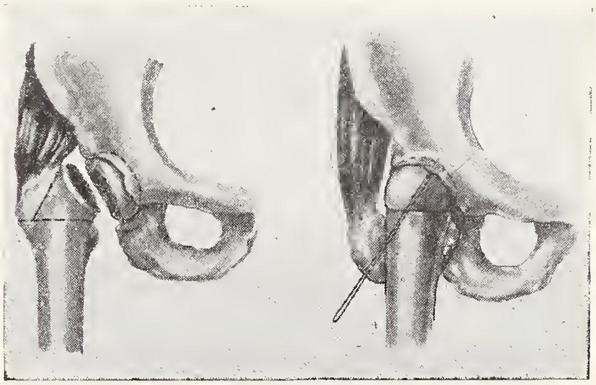


Fig. 3. Luck's reconstruction operation, indicated in cases having resorption of the femoral neck and a viable femoral head.

The Luck[10] operation is similar in principle to some of the others. In this operation the end of the head fragment is freshened, a transverse osteotomy done above the lesser trochanter and the upper shaft of the femur approximated to the freshened head. The excess bone of the upper femoral fragment is then excised so as to remove the trochanter attached to the abductor muscles. The trochanter with the muscles is then transplanted downward on the shaft of the femur. The trochanter and the upper and lower femoral fragments are then transfixed by means of a metal pin. It should be remembered that arthritic changes in the hip joint contraindicate the use of these methods.

GROUP 3

CASES IN WHICH THERE IS ASEPTIC NECROSIS OF THE HEAD OF THE FEMUR AND COMPLETE ABSORPTION OF THE NECK OF THE FEMUR

For these cases the Albee, the Whitman, and the Colonna operations have been developed. It should be remembered that these authors recommend their respective procedures only in cases of complete absorption of the neck with necrosis of the head of the femur. Arthritic changes contraindicate the use of these procedures. The principle of these operations is essentially the same, that is, removal of the necrotic head, insertion of the upper end of the femur into the acetabulum and transplantation of the abductor muscles outward and downward on the shaft of the femur. In the cases in which they are indicated, it is impossible ever to restore a joint to normal and, therefore, an artificial joint is produced and the results depend on stability, motion, and absence of pain and limp.

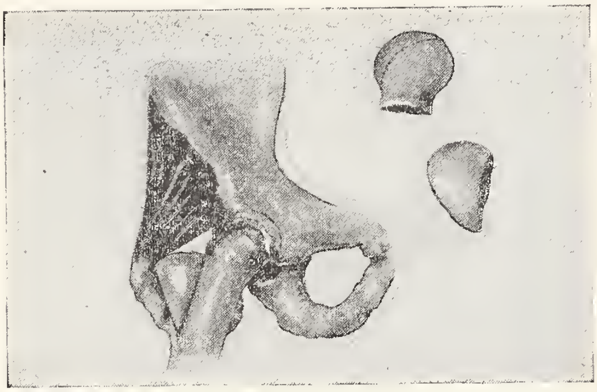


Fig. 4. Albee's reconstruction operation, indicated where there is resorption of the femoral neck and a dead femoral head.

In the Albee operation the dead femoral head is removed and a lever of bone is elevated beginning at the top of the trochanter and extending downward three or four inches on the lateral aspect of the shaft of the femur. This is then pried outward and a wedge made from the head of the femur is placed between the shaft and the bone muscle lever in order to maintain abduction of the lever. The upper end of the femur is then rounded, reshaped, and placed into the acetabulum and abduction is then brought about. The purpose of the lever is to facilitate the action of the abductor muscles. The extremity is immobilized in abduction in plaster for three and a half to four weeks, after which ambulation and active motion is started with the use of crutches. Albee reports satisfactory results from this operation in over 400 patients in the past twenty years.

In the Whitman[11] operation the necrotic femoral head is removed and the trochanter together with the abductor muscles is transplanted downward on the shaft of the femur. The upper end of the femur is then reshaped and inserted into the acetabulum and the extremity is immobilized in abduction in plaster for about eight weeks.

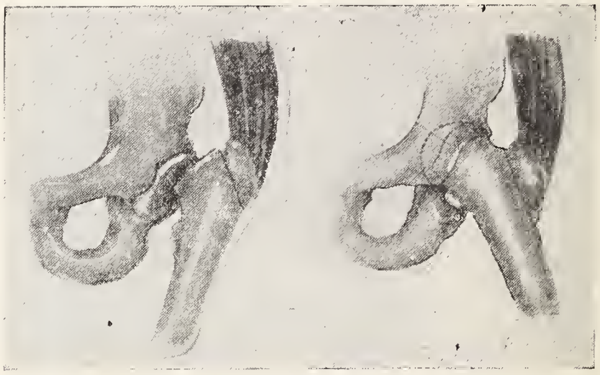


Fig. 5. Whitman's reconstruction operation, indicated where there is resorption of the femoral neck and aseptic necrosis of the femoral head.

Henderson reported on the use of Whitman's operation in 23 cases, 19 of which were available for end result studies. The results were excellent in 31.5 per cent of the cases, the patient being able to get about without support and no pain. They did, however, have some limp and stiffness. The results were good in 36.8 per cent of the cases, the patients getting about with a cane but with a moderate amount of discomfort. The results were poor in 31.5 per cent of the cases, the patients getting no relief of pain and were still using crutches. He concluded that the reason for unsatisfactory results in cases due to pain was probably due to the presence of a preoperative arthritic condition. Henderson also stated that the Whitman operation is the one of choice in cases in which the head of the bone cannot be saved for various reasons. He had not used the Colonna operation at that time. One can readily see that if the cases were eliminated which had arthritic changes, the results of this operation would be better.

Colonna's[12] operation: In this operation the abductor muscles of the hip are severed by sharp dissection of the greater trochanter leaving a fibromuscular layer over the trochanter. The capsule is divided near the shaft of the femur and the necrotic head is excised. With the trochanter inserted deep into the acetabulum, the abductor muscles are pulled down on the shaft of the femur as far as possible, and at this point, a window is removed from the cortex for the site of future re-implantation of the abductor muscles. The trochanter is then removed from the acetabulum until the window is made with holes drilled on each side for passage of sutures. The trochanter is reinserted into the acetabulum, the abductor muscles are implanted in the trough on the lateral aspect of the femur with kangeroo tendon. The femur is abducted about 20 or 25 degrees and the wound is closed in layers. Plaster immobilization follows with the extremity abducted 20 degrees with the hip in full extension. The posterior part of the plaster is removed from the knee distally in two weeks when flexion of the knee is started. The plaster is removed entirely at the end of four weeks at which time motions are started at the hip. It is important, early, not to allow the extremity to go into adduction. Walking with crutches is started in about seven weeks.

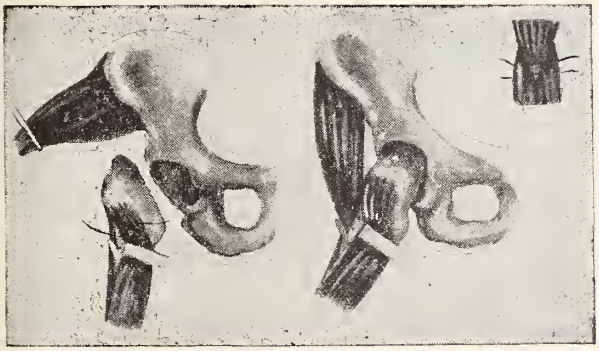


Fig. 6. Colonna's reconstruction operation, indicated where there is resorption of the femoral neck and aseptic necrosis of the femoral head. Results are better when no previous surgery has been done and no arthritic changes are present.

In a recent survey, Colonna[13] found that this operation had been done in 121 cases by various orthopedic surgeons throughout the country. It was found that in 82.5 per cent of the cases the results were satisfactory, and in 17.5 per cent they were unsatisfactory. Colonna states that the results are better in cases without preoperative evidence of arthritis about the joint and without previous hip joint surgery. Many failures from this operation are undoubtedly due to improper selection of cases and to inadequate operative technic and after care.

In a recent personal communication Colonna states that he has done about 35 cases by this method to date and he feels that the operation offers stability, mobility and an increase in length of the extremity in patients who are able to stand the reconstruction operation and who have absorption of the neck with necrosis of the head of the femur.

GROUP 4

A MISCELLANEOUS GROUP OF CASES HAVING ONE OF THE FOLLOWING CONDITIONS IN ADDITION TO NON-UNION AT THE HIP

1. A poor surgical risk.
2. Arthritic changes in the joint.
3. Previous surgery with poor results.

In some patients the general condition may be so poor that no major procedure is warranted. Some of these cases may be benefited by the high osteotomy as it is a procedure which entails little shock and may be done in a few minutes.

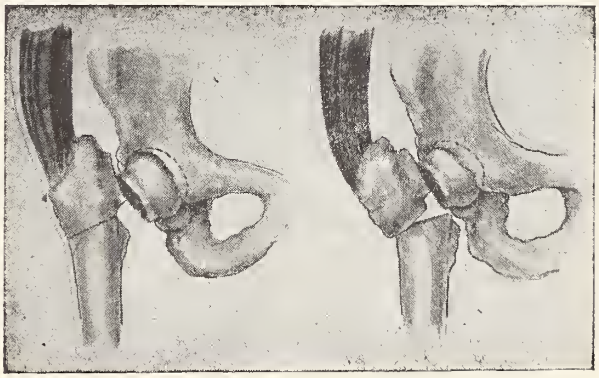


Fig. 7. The high osteotomy which may be done in any case of non-union.

Patients who have arthritic changes in the joint should not be subjected to any of the reconstructive operations. In these cases the osteotomy or preferably hip joint fusion should be done. Some orthopedic surgeons are inclined to fuse the hip in many of these cases as it offers the best opportunity for stability and freedom of pain at the expense of motion.

It should be remembered that operations on the hip are among the most major of all surgical operations and for this reason alone should be undertaken only by those who are accustomed to doing this type of work and fully equipped to cope with any and all circumstances which may arise. It naturally follows that only the patients who are fairly young and robust and who expect to resume normal physical activity should be subjected to the reconstruction procedures. The high osteotomy can always be done in the older and less robust patients. Proper attention to details is as necessary in the after care as in deciding upon and executing the procedure of choice.

REFERENCES

1. Orr, H. Winnett: Discussion of Henderson's paper, West. J. Surg., 43:140, 1935.
2. Martin, E. D., and King, A. C.: New method of treating fractures of the neck of the femur, New Orleans M. & S. J., 75:710, 1922-23.
3. Smith-Petersen, M. N., et al.: Intracapsular fractures of neck of femur: Treatment by internal fixation, Arch. Surg., 23:715, 1931.
4. Smith-Petersen, M. N., and Conwell, H. E.: Treatment of fractures of the neck of the femur by internal fixation, J. Bone & Joint Surg., 21:483, 1939.
5. Phemister, D. B.: The pathology of ununited fractures of the neck of the femur with special reference to the head, J. Bone & Joint Surg., 21:681, 1939.
6. Albee, F. H.; Injuries and Diseases of the Hip, New York, Paul B. Hoeber Co., 1938.
7. Campbell, W. C.: Central or intracapsular fractures of the neck of the femur, Proc. California Acad. Med., 2:53, 1931.
8. Brackett, F. G.: Treatment of ununited fracture, Boston M. & S. J., 177:351, 1917.
9. Magnuson, P. B.: Repair of ununited fracture of neck of the femur, J. A. M. A., 98:1791, 1932.
10. Luck, J. V.: Reconstruction operation of pseudoarthrosis and resorption of neck of femur, J. Iowa State M. Soc., 28:620, 1938.
11. Whitman, Royal: Reconstruction operation for ununited fracture of neck of femur, Surg. Gynec. Obst., 32:479, 1921.
12. Colonna, P. C.: New type of reconstruction operation for old ununited fracture of neck of femur, J. Bone & Joint Surg., 17:110, 1935.
13. Colonna, P. C.: The Colonna reconstruction operation for ununited fractures of neck of femur, J. Bone & Joint Surg., 21:701, 1939.

DISCUSSION

Dr. Albert A. Tisdale (Lafayette): I think we should remember that in the acute fracture if there is accurate reduction performed, and confirmed by the heel to palm test, that the percentage of union is materially increased, and therefore, we will not be called on to use the open method. In the April 1940 issue of the Journal of Bone and Joint Surgery, Drs. Compere and Lee, in giving the treatment of fractures of the neck of the femur with non-union, mention that they prefer the use of the tibial bone graft combined with five Kirschner wires which are threaded at the end. This method is used so that they can get the patient up in a couple of weeks and this prevents holding the knee joint and the hip joint immobilized for a long period of time in a patient who no doubt has been immobilized previously for a period of a month or more. As you know, in these cases that are immobilized a long time, in the elderly patient, there is likely to be limitation or even loss of motion in the knee or hip joint. This method obviates long immobilization. It is also better not to use large metallic fixation, so these authors say, due to the fact that it is likely to cut off what little circulation remains. Circulation in the head and neck of the femur is at best meager.

Dr. E. D. Fenner (New Orleans): I am rather uneasy when I get up to discuss a paper of this kind. I think we are always benefited by having some one of our members call attention to the fact that the prognosis of fracture of the neck of the femur has been greatly improved in the last ten years. My personal conclusion is that it has not been as much improved as the enthusiastic writers who present papers on the subject would lead us to believe. Shakespeare observes that, "The evil men do lives after them; the good is often interred with their bones." In regard to the results in the treatment of these fractures of the neck of the femur, I think the situation is somewhat reversed. I think the failures are very frequently interred, and that the writers forget all about them.

Of course, Dr. Alldredge did not attempt to give all the various procedures that have been proposed for the treatment of non-union of fractures of the neck of the femur. For instance, he did not mention Shanz low osteotomy, which has been employed. But I think other men who are going into this work with a great deal of enthusiasm, should be advised that there is a mortality in these cases of fracture of the neck of the femur which is not recorded. The great objection, the great difficulty, in the treatment of these cases is wrapping these patients up in a long hip spica for weeks and weeks. I remember telling Dr. Whitman once in New York that down here in the climate of New Orleans in the summertime, you could not put a fat old woman in a hip spica in abduction because she died, not of the fracture, but because of the treatment. He implied, "You're just a damn fool." He did not say those words but that is what he meant. I think a great many develop complications and do die as the result of long hip spicas. Of course, in doing reconstruction operations, you have to use long spicas. In spite of that, when you consider how badly displaced, how much constant pain these patients suffer, an effort to give them a stable hip, on which they can stand, is certainly justifiable, and the only thing I would attempt to urge on the younger men is to consider with considerable care what the chances are that your patient is able to stand and survive the severity of the necessary treatment.

Personally, I think that operations which demand opening up the hip joint and removing the head of the femur are much more dangerous, more prolonged, and a heavier risk than the simple procedure which Dr. Alldredge illustrated of osteotomy high up, just opposite the lesser trochanter. I am inclined to think this is the procedure which is more applicable in the larger percentage of cases and probably will give just as satisfactory results as serious procedures such as Whitman's, when you open up the hip joint and remove the head of the femur.

Dr. Guy Caldwell (New Orleans): Dr. Alldredge has given us a most excellent review and summary of the indications and operative procedures used for the various types of non-union of the neck of the femur. He reminds us that something can be done, as Dr. Tisdale has said, and that something should be done. The percentages of non-union of fractures of the neck of the femur as quoted in many of the current articles, particularly the figures given as related to internal fixation, are doubtless premature and inaccurate. We may believe that about 90 per cent of the cases under present treatment but this certainly is not true of our work in the Charity Hospitals, where we get the worst types of cases, not the best nursing care and, perhaps, not the best surgical technic. The mortality in our Charity Hospital service is higher than the mortality given in the average statistics, and we do not secure union in nearly so many as recent reports from various sources indicate. We have, therefore, our own failures which require some type of reconstruction operation and, in addition, many failures transferred to us by other hospitals and surgeons.

With reference to mortality, the patients who have already survived the procedure of nailing or of fixation in plaster, and lived two to six months and developed non-union, have also passed through the critical stages when most deaths occur. If they survive these procedures, it is fairly good proof they are good surgical risks when given good preoperative and postoperative treatment.

As to the selection of a reconstructive procedure it depends on the vitality of the head, amount of absorption of the neck and the presence or absence of arthritic changes, as Dr. Alldredge has said. Perhaps for lack of time he did not stress the proper place for osteotomy. I doubt that as yet we know the exact indication for the high osteotomy, which is undoubtedly the simplest operative procedure we can use. In all probability osteotomy should be used for those patients with early non-union in whom there is no absorption of the neck but are not good enough surgical risks to justify the more formidable operations which require more time for opening the hip joint, inserting grafts or reshaping and readjusting the fragments.

Dr. John T. O'Ferrall (New Orleans): Dr. Alldredge has given us a very splendid description of these procedures for fractures, with non-union, of the neck of the femur. They are, of course, more or less standard. They are well recognized surgical procedures.

I was an intern on Dr. Brackett's service and liked the procedure very much, and since being in New Orleans I have had the temerity to treat three patients with ununited fractures according to the Brackett method. The results have been excellent. One of the patients is extremely active and had no difficulty since operation. The other is very stout and has not gotten about as actively as she might have if she had been willing to reduce her weight. The third patient died of pneumonia four months after operation.

I believe with Dr. Fenner that certainly in these secondary procedures for ununited fractures, the patient should be selected extremely carefully. It is a major operation. It requires a great deal of responsibility. They have been able to go through one shock and with the additional test of standing a long spica, I think we should select our patients carefully.

Of course, it is to be hoped with the recent developing of pinning methods there will not be so many ununited fractures, but as Dr. Alldredge said, there are going to be a certain number of ununited fractures, irrespective of the method used.

Dr. W. Rogers Brewster (New Orleans): I do not think that I can add anything to what has been said. The proposition in so far as I see it has just been called to your attention by Dr. O'Ferrall, and that is that in undergoing a change in the treatment and the handling of fresh fractures from the older methods to the present generally accepted internal fixation, we are most likely going to see a good many less such cases of non-union. That, I think, is the largest part in the handling of non-union. We may now effectively use prophylaxis against non-union, by the handling of fresh cases by internal fixation as the method of choice. We have been following the method developed here by Dr. Denegre Martin, introduced about 1920, so actually in this locality we have been using internal fixation for a longer period than most other places. The results are continuing to be excellent, and there is a very low incidence of mortality and a very low incidence of non-union in those patients seen early. In those patients on whom internal fixation has been tried as a delayed method, I mean by that delay of some period of time, we have not been particularly successful. We have one case which apparently is rather remarkable, which we have not been able to duplicate. Internal fixation was applied some eight months after the fracture occurred, internal fixation was followed by union, and we have x-rays taken eight years later to show fixation. I have attempted since that time two cases of delayed internal fixation, one over a period of two months, and the other three months, I think, and in neither was internal fixation successful in accomplishing the union desired.

Dr. Rufus H. Alldredge (In conclusion): I should like to thank Dr. Fenner for mentioning the Shanz osteotomy, which I did not consider. The Shanz osteotomy, I believe, is not done as commonly in these cases as the high osteotomy, although I am aware that it has been done quite often. It undoubtedly will give results in some of the cases. I have had no experience with it.

I also thank Dr. Fenner for reiterating the seriousness of doing these reconstruction operations. I have already said that they are serious and only those who are qualified to do hip joint surgery and who do it all the time should attempt these reconstruction operations. I agree with Dr. Fenner about the selection of cases and the choice of operation. The matter of postoperative fixation in plaster has been an objection to any treatment undertaken for any of these cases. More recently, certain surgeons have started using in addition to a graft, if graft is used, metal fixation, such as a Smith-Petersen pin or wires. That is applicable to cases in which the head and neck of the femur are conserved. In cases in which the head is dead and reconstruction has to be done, this cannot be carried out. These patients must be subjected to a period of plaster. That must be taken into consideration before doing these procedures, so as to decide if the patient can stand it.

Dr. Caldwell has already pointed out that the very fact that patients survive the original fracture shows them to be of stronger fiber than the average.

I wish to thank Dr. O'Ferrall for again pointing out the seriousness of these operations and the need for careful selection of patients.

SURGERY IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

P. R. GILMER, M. D.
SHREVEPORT

Within the past ten years, notably within the past five years, surgery has become an essential procedure in the treatment of pulmonary tuberculosis. Patients formerly committed to an indefinite period of chronic invalidism are now, through surgery, restored to health and returned to gainful occupation.

The above paragraph, while containing only two sentences, conveys important information. First, that surgery in the treatment of pulmonary tuberculosis is no longer experimental or optional, but essential to recovery in selected patients, and secondly, that through surgery a long period of convalescence is obviated and economic security regained.

It was with these two dominant thoughts in mind, and the necessity of emphasizing them, that this paper was undertaken. Obviously, all surgical procedures cannot be dealt with—to do so would entail a volume. It was of paramount importance was to focus the attention of this Society on the more commonly used procedures, their indications and contraindications, and what might reasonably be expected in the matter of results.

GENERAL INDICATIONS

Alexander[1] states that in leading tuberculosis centers, 50 to 85 per cent of all patients have surgical treatment of some type. Of this number, it is generally conceded, fully 95 per cent of operations are for the purpose of closing cavities. This does not indicate, however, that surgery is not used for chronic fibrous tuberculosis, ulcerative tuberculosis without visible or audible cavity or exudative tuberculosis. In fact, Meltzer[2] has recently reported his results obtained in five patients with acute progressive tuberculosis upon whom he did a thoracoplasty.

Needless to state, pneumothorax was impossible and the outlook so hopeless that surgery was offered and accepted as a last resort. Four of the five patients showed a favorable response, which is 80 per cent. Meltzer makes the plea that indications for surgery be made less rigid. In other words, he "fought fire with fire", and upon this question, I concur.

It is a well known and accepted principle in the treatment of pulmonary tuberculosis that as long as an open cavity remains in the lung—just so long is permanent recovery retarded. In fact, the patient's daily life and health is in constant jeopardy through fear of spread of infection. Acute bronchiogenic and hematogenous spread to the lungs eventually occur, to say nothing of the distressing and fearful complications of laryngeal and intestinal tuberculosis. After these unfavorable changes have taken place, surgery of course, is inadvisable.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

Therefore, it behooves all of us engaged in tuberculosis work to lend every effort within our power to effect closure of all cavities. Artificial pneumothorax, of course, should always be attempted, and when it is successful, no other measures need be applied. Should pneumothorax prove ineffectual, no time should be lost in adopting the suitable surgical measures advocated in this paper. Perhaps, very often it will be desirable to abandon the pneumothorax entirely, re-expand the lung, and proceed directly to extrapleural thoracoplasty. It must always be borne in mind, that an ineffectual—that is a pneumothorax which does not close cavities and convert sputum from positive to negative—is worse than no pneumothorax at all. For it is prone to furnish a "false" feeling of security, and in the meantime a dangerous spread may occur.

CONTRAINDICATIONS TO PNEUMOTHORAX

Surgery, occasionally, is inadvisable, even though definite cavitation exists, and the surgeon must have sufficient training in the medical aspects of tuberculosis to recognize such cases. The type of cavity referred to is known as the "tennis ball" cavity. The mechanics of such a cavity are comparable to a tension pneumothorax. In other words, air enters the cavity, but only with great difficulty is expelled. Likewise sputum is extruded with great effort and paroxysmal coughing. Usually an ulcer (tuberculous) of the bronchus leading to the cavity, and which upon healing produces stenosis, is the etiologic factor.

Clinically such cavities are identified by a marked wheezing heard at the patient's mouth, the paroxysmal coughing attacks, and the paucity of sputum raised. From a radiographic standpoint, these cavities are even more puzzling, unless one keeps such a cavity in mind. They vary greatly in size on serial films, and may even disappear entirely for variable lengths of time.

In explanation of the peculiar behavior of such a cavity, Baum,[3] in a very recent article, gives a convincing and logical solution. We are gently chided by him for our neglect to consider mathematics in our dealings with diseased conditions, and are reminded that "plus + plus" still gives plus, and that "minus + minus" still gives minus. Applied to the "tennis ball" cavity, this means that when the stenosis of the draining bronchus is patent sufficient only to allow air to enter the cavity, there is a situation of "plus + plus", and the cavity becomes larger and more tense. Conversely, when the stenosis is complete, there is the reverse condition, "minus + minus," that is, the air in the cavity becomes less and less and is completely absorbed. The cavity itself then disappears.

It is needless to state, that to attempt to collapse such a cavity, either by pneumothorax, phrenic nerve interruption or thoracoplasty, would eventuate in unsuccessful, if not dire, results. The proper treatment, obviously, is to promote better drainage by dilating the constricted bronchus through the bronchoscope. After satisfactory drainage has been established, then thoracoplasty or other collapse measures may be applied. Should dilation of the bronchus prove impossible, the only course left would be lobectomy or pneumonectomy.

METHODS IN COMMON USE

Having now briefly considered some of the indications and contraindications for the use of surgery in the treatment of pulmonary tuberculosis, it is now in order to enumerate some of the more common procedures. For sake of convenience, this type of surgery may be divided into those measures which are extrapleural, and those which are intrapleural.

Extrapleural procedures include the following: (1) Extrapleural thoracoplasty, with or without the apicolysis of Semb; (2) extrapleural plombage, including (a) paraffin; (b) bags (rubber); (c) muscle flaps; (d) other materials (experimental); (3) extrapleural pneumothorax; (4) phrenic nerve interruption, temporary.

Intrapleural procedures include the following: (1) Intrapleural pneumonolysis; (2) lobectomy; (3) pneumonectomy.

GENERAL COMMENT ON EXTRAPLEURAL METHODS

Extrapleural thoracoplasty has been so uniformly used and has given such uniformly excellent results, especially in recent years, that it is hardly necessary to state this operation is the one of choice of the extrapleural measures. It must be borne in mind, however, that no one standard operation can possibly meet all the various situations and conditions encountered. It is for this reason that other extrapleural methods have been developed.

In certain instances, patients may not be suitable surgical risks for the more drastic thoracoplasties, and for such individuals some method of plombage may be advisable. Often times too, thoracoplasty is supplemented with plombage. This is particularly true where huge apical cavities, located more anteriorly, are encountered. The transplanting of the pectoralis major muscle has been very successfully used in numerous instances.

Paraffin probably has been used more often and with better results than any other one substance. Rubber bags and other materials have all had trial, and recently Matson of Portland, Oregon, has been working with a new plastic material; results with it will be published shortly.

In brief the technic of plombage is the establishing of an extrapleural space, by locating the endothoracic fascia, subperiosteally, and establishing a line of cleavage. Having created such a space it is then filled with paraffin or other material. It has the advantage that only a portion of one rib need be resected and consequently there is no deformity whatever. Out of 35 such operations, using the posterior approach, in which cleavage was satisfactory, Alexander[4] states that cavities became closed in 85.5 per cent and tubercle bacilli disappeared from the sputum in 82.2 per cent. Occasionally extrapleural cleavage is unsatisfactory due to dense fibrous adhesions. At such times the procedure must be abandoned, and if possible first stage thoracoplasty be done.

Extrapleural pneumothorax through the work of Graf[5] with certain modifications by Schmidt[6] recently has come into considerable prominence. Here again, the technic of establishing the extrapleural space, subperiosteally, in the endothoracic fascia is very much the same as preparing the space for paraffin. The important difference, however, is that the space must be more extensively developed. Such a space having been created is maintained by refilling with air. Dolley, Jones and Skillen[7] of Los Angeles report their experience in over 80 cases. In a large number of these cases, I participated in the operations and had the responsibility of postoperative care. There was no instance of unsuccessful cleavage.

Phrenic nerve interruption has now been in such general usage for the past ten years that it needs only to be mentioned. Of importance, however, in this connection is the almost total abandonment of exeresis. It is now in the light of accumulated data deemed more advisable to crush the nerve, rather than to sever and extract it. It has been shown that permanent interruption at times actually has had an adverse effect. This is particularly significant in the instance of blocked or "tennis ball" cavities. Should the temporary paralysis of the crushing prove advantageous, later, it may be recrushed—or if thought best—severed. Accessory phrenic nerves should be sought diligently, and the identification and severance of them often means the success or failure of the operation.

GENERAL COMMENTS ON INTRAPLEURAL METHODS

Intrapleural pneumonolysis, closed technic, comprises, to date, about 90 per cent of all such procedures. Open pneumonolysis has been done, and very successfully, but the percentage of success does not compare with the closed method.

In 1913 Jacobaeus[8] of Stockholm devised this ingenious operation for the severance of certain adhesions encountered in artificial pneumothorax, and which prevented by their presence, satisfactory closure of cavities. His technic is used today with only slight modifications. It consists of the introduction, at suitable points, of two cannulae into the pleural (pneumothorax) space. Through one a telescope for visualization of the adhesions is placed and the other carries the cautery element. Coryllos has devised a lens system for the telescope, employing the foroblique principle, which to some operators has a distinct advantage. Cutler and others have combined in one unit the lens system and cutting unit. By this means only one cannula need be introduced. Matson and his co-workers also have special instruments.

Regardless of the type of instruments used, intrapleural pneumonolysis has proved to be the greatest and most successful operation, to date, of the intrapleural class.

It is a far cry indeed from the old rest in bed, raw eggs, milk and climatic therapy of not so very long ago to the present surgical treatment of lobectomy and pneumonectomy for pulmonary tuberculosis.

As long ago as 1881, Block[9] of Danzig resected the apices of both lungs in one operation, and upon the death of his patient, suicided without recording detailed observations of the patient. It is reported by Walton[10] that the medico-legal inquest disclosed the patient did not have tuberculosis.

Ruggi,[11] Tuffier,[12] Lowson[13] and others did pioneer work in this field in the latter part of the 19th century. More recently, in 1935, Eloesser[14] and O'Brien[15] each reported lobectomy for tuberculous cavities. Jones and Dolley[16] report four cases of lobectomy and pneumonectomy for tuberculosis without mortality. Two of these patients are well and two are greatly improved.

Obviously cases for lobectomy and pneumonectomy must be carefully selected, but it is believed, that in the future, such operations will become more frequent and successful. The fact that these operations have been done is most encouraging.

OPTIMUM TIME FOR SURGICAL INTERVENTION

The time for surgical intervention is at hand when it has been demonstrated that other measures have failed and when the patient's general condition is such as to permit major surgery.

The above point needs all the emphasis possible. How often, in the experience of all of us, have we unduly delayed operating, only to have the patient suffer a spread of infection that precluded surgery. It must be kept in mind too, that a patient is a better surgical risk if allowed out of bed daily for a few weeks. The complete bed-rest patient's general muscular and cardiac weakness is at too low an ebb to tolerate major surgery.

SUMMARY

This paper, though brief, has endeavored to bring out the more commonly used surgical procedures in the treatment of pulmonary tuberculosis. Any one of the methods advocated might well be the subject of an entire full length paper. Obviously surgical technic could not be given, for that was not the object of the paper. The main point was to focus the attention of this Society on what can be done and to urge that patients be given full benefit of these procedures. It has also been clearly shown and reiterated that delay in turning to surgery is dangerous. And finally it is emphasized that it is most important for the surgeon to have a thorough medical knowledge of pulmonary tuberculosis, otherwise he will be caught attempting procedures doomed to failure. Lacking this knowledge himself, he must work in close cooperation with a trained internist, who has specialized in the treatment of this disease. For those readers interested particularly in the technic of the various procedures, the appended bibliography will prove helpful.

REFERENCES

1. Alexander, John: The Collapse Therapy of Pulmonary Tuberculosis, Springfield, Charles C. Thomas, 1937, p. 1.
2. Meltzer, H.: Thoracoplastic collapse of acute progressive tuberculosis; report of five cases, J. Thoracic Surg., 8 :627, 1939.
3. Baum, Felix: Logic of collapse therapy, J. Thoracic Surg., 9 :322, 1940.
4. Alexander, John: The Collapse Therapy of Pulmonary Tuberculosis, Springfield, Charles C. Thomas, 1937, p. 400.
5. Graf, W.: Uber die thorakoplastische Totalausschaultung des Spitzenoberfeldbereichs der Lunge und die klinische Auswertung des extrapleuralen Selektivpneumothorax und -oleothorax zur Einengung des anzeigengebiets der "primären Thorakoplastik", Deutsche med. Wchnschr., 62 :632, 1936; Ausblick auf neue Wege in der chirurgischen Kollapstherapie der Lungentuberkulose. Extrapleuraler Selektivpneumothorax und -oleothorax, ibid., 63 :4, 1937.
6. Schmidt, W.: Gezielte Teilplastik, Pneumolyse, extrapleuraler Pneumothorax und Oleothorax als Methoden einer erhaltenden und schonenden operativen Kollapstherapie, Beitr. z. Klin. d. Tuberk., 88 :689, 1936; Die pneumolyse mit nachfolgendem extrapleuralen Pneumothorax oder Oleothorax, ibid., 91 :121, 1938.

7. Dolley, F. S., Jones, J. C., and Skillen J.: Technique of extrapleural pneumothorax, J. Thoracic Surg., 8:646, 1939.

8. Jacobaeus, H. C.: Endopleurale Operationen unter der Leitung des Thorakoskops, Beitr. z. Klin. d. Tuberk., 35:1, 1915.

9. Block; Berl. klin. Wchnschr., 1881; Deutsche med. Wchnschr., 1881; Verhandl d. deutsch. Gesellsch. f. chir., p. 77, 1882.

10. Walton, G. L.: Resection of the lung as proposed by Dr. Block, Boston M. & S. J., 108:261, 1833.

11. Ruggi, G.: La Tecnica della Pneumectomia Nell' uoma, Bologna, 1885.

12. Tuffier, T.: Chirurgie de poumon, en particulier dans les cavernes tuberculeuses et la gangrene pulmonaire, Masson & Cie, Paris, 1897.

13. Lowson, D.: A case of pneumonectomy, Brit. M. J., 1:1152, 1893.

14. Eloesser, L.: Discussion, Freelander, S. O.: Lobectomy in pulmonary tuberculosis. Report of a case, J. Thoracic Surg., 5:132, 1935.

15. O'Brien, E. J.: Idem.

16. Jones, John C., and Dolley, Frank S.: Lobectomy and pneumonectomy in pulmonary tuberculosis, J. Thoracic Surg., 8:351, 1939.

DISCUSSION

Dr. Joseph E. Heard (Shreveport): I can not help but feel that surgery in this type of work is still more or less in its infancy. Surgery of the chest has made rapid strides in the last few years and is still going forward very fast. Surgical treatment of tuberculosis has only been used within the last few years and any one who has watched surgical measures applied to these cases, that were previously considered hopeless, would certainly be astounded with the results. Many surgical measures have been used and still are being tried but at the present very few really are giving satisfactory results.

Of these, one of the simplest is phrenic interruption. There is still some controversy among authorities on this subject. Personally, I think it is a well worthwhile procedure. I know I have seen splendid results with phrenic interruption, when properly indicated. In this type of surgery I feel that one can get into serious trouble with all of the measures used. One may think phrenic interruption is comparatively simple but many accidents have happened. Arteries, nerves and many vital structures have been damaged. Temporary interruption, in other words crushing of the nerve, now is used in place of severing or twisting out the nerve. I still, however, believe this is a good measure in selected cases.

Another surgical procedure is intrapleural pneumonolysis, cutting adhesions in the chest. This is a splendid procedure in certain selected cases, but these patients should be carefully chosen as there is only a comparatively small number to which this measure may be applied successfully. There is more danger when there are many adhesions present. Blood vessels in adhesions must be considered. This procedure always has dangers. The patient can have a fatal hemorrhage several hours later after the adhesions have been cut, the lung can be punctured and the intercostal vessels damaged. However, it is still a splendid measure and has worked out very satisfactorily.

Thoracoplasty is probably giving better results than other measures. Thoracoplasty does not always, however, give the desired results. It is a comparatively simple matter to do a subperiosteal resection on the ribs but when you go back and see a cavity the same size, it is rather discouraging. Technic has been worked out where it is done in stages; one, two, or three stages as the case may require, not taking out more than three ribs at one time. The first stage consists of removing the three upper ribs which are removed practically in their entirety. The second stage, takes three more ribs below. From the second rib down in cavities deeply situated in the back, the transverse processes should be resected according to Alexander's technic. To get the ribs and transverse processes out is not always as easy as it seems and requires very careful work. Thoracoplasty is yielding beautiful results and it is really astounding to see the improvement in patients where the cavity has been closed following a properly carried out thoracoplasty. Doubtless in the near future the technic will be improved and probably other more satisfactory measures used. I do not have any doubt but that in the future the results of this type of work will be far better than they are today, although at present the results of surgery in the treatment of pulmonary tuberculosis are nothing short of marvelous.

Dr. Russell H. Frost (Monroe): My brief discussion of Dr. Gilmer's excellent paper is contributed from the standpoint of the sanatorium physician who sends most of these tuberculous patients to the thoracic surgeon, and hence is concerned not with questions of surgical procedures themselves but with one or two other important aspects of the subject.

At the risk of emulating Daniel in the lions' den—with possibly a less fortunate outcome for myself—I want to make plain my belief that thoracic surgery, particularly as it pertains to the collapse therapy of pulmonary tuberculosis, has now become a specialty within the special field of surgery, and that it should therefore be attempted only by the man who is not only a competent "general surgeon" but who has also had the benefit of an ample period of training and experience under an established thoracic surgeon on a busy service. To omit such special training results only too often, in my experience, in the injudicious selection of patients who are subjected to too much or too little surgery and who receive inadequate postoperative care—all of which, as may easily be imagined, contribute to disappointing end-results. I think this premise gains support from the undoubted fact that few if any other fields of surgery have advanced so much in recent years or are at present in such a constantly changing, dynamic state of flux, when it is difficult merely to keep abreast of the knowledge of the changing indications for, and types of, chest surgery in tuberculosis, let alone to master the surgical technics themselves.

Time permits the mention of only one late development which is of great interest to those of us charged with the preoperative preparation of these patients. I refer to the several recent communications suggesting the value of administering, preoperatively, adrenal cortical extract or the new synthetic hormone, desoxycorticosterone acetate, not only to those suffering from Addison's disease but to all debilitated patients, whatever the cause. In many such cases this has apparently resulted in a greatly decreased incidence of shock and in a surprisingly smooth and rapid convalescence. If these first favorable reports can be substantiated this development should find wide application in the surgery of the aged and in the field of elective surgical procedures in general, particularly in the debilitated, bad risk patient. It should be especially valuable in the always debilitated, never good risk tuberculous candidate for major chest surgery, and may lower the already respectably low operative mortality rates in these cases as well as make possible the surgical treatment of certain types of patient now denied this boon.

Dr. C. R. Gowen (Shreveport): There is very little that can be added to the selection of operation and technic as covered by Dr. Gilmer and Dr. Heard. As a medical man, I feel that it is the responsibility of the clinician to select patients and give preoperative and postoperative care. In no other line of surgery can preoperative preparation of the patient and postoperative care be more emphasized, both by the clinician and surgeon, because constantly there are conditions arising in chest surgery that require the attention of the surgeon, as well as the medical man, following operation. Very often there are disastrous results in early operations. In the treatment of clinical tuberculosis twelve years ago, before the advent of surgery, 80 per cent died without collapse. Now this is changed, 80 per cent are in fair degree of health with some form of collapse.

This is really the beginning of a new line of work. There is a great deal to be said and much to be done. This is the first time we are able to offer the tuberculous patient something substantial and something real, and that is some form of thoracic surgery.

Dr. Gilmer (In conclusion): As it has been brought out, it would be impossible to go into the various technics and follow through postoperative care of types of operations here.

Dr. Heard rightfully says that surgery in the chest has made enormous strides, particularly in the last five years. Surgical thoracoplasty has been revolutionized almost entirely. Before, there was inadequate exposure, now adequate, and a lot more can be done. It is generally conceded that three ribs is the maximum number to be removed in one stage; however, the point where more can be resected at one stage would be in a patient whose pleura is very thick and very rigid and therefore less paradoxical respiration, than the patient with thin and yielding pleura. Paradoxical respiration is one of the chief complications with which we have to deal.

Dr. Frost has brought out the point of judicious selection of patients. The man doing this surgery should have a thorough knowledge of the subject so that he will not be tricked or misled. It is very important to pick the right cases.

The postoperative complications, as brought out, require the attention of the internist, but primarily the man trained in thoracic surgery should be the leader in planning what should be done. Postoperative atelectasis is one serious complication. The thoracic surgeon should be familiar with this.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio

For one year: Lucien A. LeDoux, M. D.,
Vice-chairman.

H. W. Kostmayer, M. D.
Secretary

For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF
John H. Musser, M. D.........................*Editor-in-Chief*
Willard R. Wirth, M. D...*Editor*
Edwin L. Zander, M. D.....................*Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D.....................*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

PHYSICIANS AND THE CONSCRIPTION ACT

The selective service, or conscription act, has now been passed by both houses of Congress, and signed by President Roosevelt, to become the United States' first peacetime draft bill. A proclamation has been issued naming October 16 as the day of registration for all men between the ages of 21 and 35, inclusive. The effect of this act upon the medical profession will be quite varied. Physicians in this age group will of course be required to register. Whether or not these men will be called to active training remains to be seen. In the selection of the men for training, physicians in all parts of the country will be called upon to contribute their services in the most important task of determining the physical fitness of these candidates.

Draft boards are being organized now throughout each state, and each board will require the services of a physician. The getting together of the physicians who will volunteer their services for this patriotic duty is being handled by Dr. C. G. Cole, with the councilors of the several congressional districts acting in conjunction with him. In addition, there will be special examining boards for the final decisions on the physical status of candidates. It is certain that this task will find the medical profession willing and anxious to contribute as they did so willingly and efficiently during the first World War.

The American medical profession is doing its part in the plan of national preparedness. The recent questionnaire sent out by the Committee on Medical Preparedness of the American Medical Association was answered by 52 per cent of the 179,796 physicians up to September 6. All of these questionnaires returned represented a wholehearted willingness on the part of physicians in all parts of the country to do their part. It is hoped that all physicians who have for any reason delayed in returning this questionnaire will do so as promptly as possible. The information secured from this source will greatly assist the authorities in selecting physicians for the services for which they are most suited and will benefit both the military authorities and the physicians themselves. In another section of the Journal is printed a letter from the President of the Louisiana State Medical Society, acting State Chairman of the American Medical Association Committee on Medical Preparedness, again urging all members of the profession in Louisiana to respond to this questionnaire.

The task which national preparedness will give to the medical profession is no small one. It will mean careful, honest effort, sacrifice and hard work, with little if any remuneration, except the knowledge that we as a profession are again, as always in the past, willing and anxious to do more than our part for the benefit of the nation.

HYPERTENSION

Most physicians are fully aware of the frequency of hypertension, but many fail to realize how serious this common disease is, and how large its annual toll is. It has been estimated that 500,000 people die annually in the United States of cardiovascular-renal disease, and that hypertension is responsible for from one-half to three-fourths of these deaths. This means that the annual death rate for hypertension is two to three times greater than that for cancer.

It is very discouraging in the face of these figures that while our knowledge of the experimental production of hypertension has increased greatly in the past several years, we are still a long way off from understanding the cause and mechanism of the disease in man. Certainly it is true too that the experimental work has helped the clinician very little.

In a discussion of this subject, Allen and Adson* comment on these facts and properly lament the scarcity of drugs which help this condition. They state that with the exception of potassium sulfocyanate the sedatives are the best and phenobarbital is probably as good as any.

Potassium sulfocyanate has been used for many years. While many are enthusiastic about its effects, there are many drawbacks to its general use. Many toxic symptoms may occur and it is therefore not without danger. Its use should be properly controlled by frequent determinations of the blood concentration of cyanates, which should range between 8 and 14 mg. for 100 c. c. of blood. As these authors state, it is discouraging to realize that the present day medical treatment of hypertension is practically the same as Elliott outlined 25 years ago and Moschcowitz suggested 20 years ago.

Because of this unsatisfactory status of the medical management of hypertension, sympathectomies have been performed in the attempt to relieve hypertension surgically. The relationship of the sympathetic nervous system to the mechanism of the production of essential hypertension is still debatable both clinically and experimentally. However, it has been shown that extensive sympathectomy does reduce the blood pressure in many patients with essential hypertension.

This study is a review of postoperative results in 224 cases. There were no operative deaths. The clinical symptoms invariably disappeared with a reduction of blood pressure, and in a number of cases the patients were free from symptoms even though there was a gradual return of elevated blood pressure. They conclude from their experiences that the operation is justified in the treatment of essential hypertension. Individuals seen early in the course of the disease, before irreversible damage to the cardiorenal vascular tissues, will receive the most benefit from surgical treatment. This necessitates an early recognition of the hypertension and a very careful complete study to determine the presence or absence of organic changes which will determine the selection of patients for surgical treatment.

SULFATHIAZOLE

Following the successful use of sulfanilamide and sulfapyridine, the ever increasing search for efficient and less toxic chemicals has led to the investigation of the thiazole analog of sulfapyridine which is known as sulfathiazole. Spink and Hansen* review their experience with sulfathiazole in the treatment of 128 patients with pneumonia, staphylococcic sepsis, and infections of the urinary tract. They found that sulfathiazole was no more toxic than sulfanilamide or sulfapyridine, the nausea and vomiting was not so frequent as with the other drugs, dermatitis was more frequent, and sulfathiazole appeared to have the same value as sulfapyridine in the treatment of pneumococcic pneumonia. Sulfathiazole was definitely more effective than sulfapyridine in the treatment of staphylococcic septicemia and apparently is the best drug for this infection. It also seemed to be valuable in certain infections of the urinary tract.

---

*Allen, Edgar V., and Adson, Alfred W.: The treatment of hypertension; medical versus surgical, Ann. Int. Med., 14:288, 1940.

*Spink, Wesley W., and Hansen, Arild E.: Sulfathiazole, J. A. M. A., 115:840, 1940.

In pneumonia the dosage in adults and older children consisted of an initial dose of from 2 to 4 gm. and then 1 gm. every four hours until the temperature remained normal for forty-eight hours. The dose was then reduced gradually and discontinued on the seventh day. The administration of sodium bicarbonate did not seem necessary. In 33 patients with lobar or atypical pneumonia, there was only one death. Type specific serum was used additionally in three of these cases.

No improvement was obtained in two cases of subacute bacterial endocarditis. In a group of 15 patients with staphylococcic septicemia treated with sulfathiazole, all recovered.

It would appear from this report that sulfathiazole is especially valuable in staphylococcic infections, especially septicemia. Its use is apparently as efficacious in pneumonia as sulfapyridine, and it has been suggested that it may be less toxic, more readily absorbed, and more rapidly excreted. It is probable, too, that sulfathiazole may be more efficient in the treatment of urinary tract infections.

Further experimental and clinical studies will be necessary to further clarify the indications, contraindications, and choice of these three most valuable recent adjuncts to modern therapeusis, sulfanilamide, sulfapyridine, and sulfathiazole.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

October 1.	Eye, Ear, Nose and Throat Staff, 8 p. m.
October 2.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m. Hutchinson Memorial Clinic Staff, 8 p. m. Mercy Hospital Staff, 8 p. m.
October 3.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
October 7.	Orleans Parish Medical Society Board of Directors, 8 p. m. Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
October 8.	Eye, Ear, Nose and Throat Society, 8 p. m.
October 9.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m. Touro Infirmary Staff, 8 p. m.
October 10.	New Orleans Hospital Council, City Hospital for Mental Diseases, 8 p. m.
October 14.	Orleans Parish Medical Society, 8 p. m.
October 15.	Charity Hospital Medical Staff, 8 p. m.
October 16.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m. Charity Hospital Surgical Staff, 8 p. m. The Orleans Tuberculosis Hospital Staff, 8 p. m.
October 17.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
October 18.	I. C. R. R. Hospital Staff, 12 noon. New Orleans Dispensary for Women and Children Staff, 8 p. m.
October 21.	Hotel Dieu Staff, 8 p. m.
October 22.	Baptist Hospital Staff, 8 p. m.
October 23.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m. French Hospital Staff, 8 p. m.
October 24.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
October 25.	L. S. U. Faculty Club, 8 p. m.
October 30.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheatre, 1:30 p. m.
October 31.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

The following physicians were elected to active membership in the Society: Clarence A Bishop, Walter J. Crawford, Lucien C. Delery, Manuel Garcia, Ralph G. Greenlee, Audrey U. Heintz, Charles Midlo, Harry D. Morris, and Marvin C. Smith; to intern membership: Wilfred Finkelstein, Sam Levi, and Carl H. Rabinowitz.

The Secretary reports with regret the loss of Drs. M. P. H. Bowden and A. L. Levin, two of the Society's active members.

SCIENTIFIC MEETINGS WILL BE RESUMED IN OCTOBER

The Scientific Essays Committee announces that plans have been formulated for the fall program; the first meeting to be held Monday, October 14. The meetings will include, as they have in the past, a biographical sketch of an individual prominent in medicine and medical education in Louisiana, interesting case reports, and appropriate unrelated subjects or symposia.

NEWS ITEMS

Dr. C. L. Brown has returned from Temple University where he took a postgraduate course in broncho-esophagoscopy and gastroscopy under the direction of Prof. Chevalier L. Jackson.

Dr. Charles J. Bloom addressed the Seventh District Medical Society in Jennings, June 6. His subject was "Spastic Colitis in Infancy and Childhood." Dr. Bloom also presented a paper on "Diarrheas in Children" before the Coast County Medical Society in Biloxi, July 3.

Dr. A. L. Whitmire recently presented, over radio, a talk on "Eye Strain." His subject covered a three year observation of children of parochial schools.

Drs. R. Alec Brown, W. H. Perkins and J. L. Wilson were speakers at a recent meeting held to discuss means of lowering the tuberculosis mortality rate in New Orleans.

Dr. W. B. Clark was recently appointed head of the department of ophthalmology of the Tulane University School of Medicine.

Dr. Edmund Connely spoke on hypnotism at a meeting of the Health Builders Club, August 13.

Dr. B. G. Efron was recently elected to membership in the American Statistical Association.

Dr. Roy W. Wright has been elected to membership in the American College of Hospital Administrators.

Edwin L. Zander, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	**Second Wednesday of every month**	**Baton Rouge**
Morehouse	**Second Tuesday of every month**	**Bastrop**
Orleans	**Second Monday of every month**	**New Orleans**
Sabine	**First Wednesday of every month**	
Second District	**Third Thursday of every month**	

NATIONAL PREPAREDNESS PROGRAM

To the Medical Profession of the State:

We are definitely in the midst of a National Preparedness Program. We can no longer guess or predict that the Draft Bill will or will not pass the United States Senate or House of Representatives. The Draft Bill has already been enacted into law and President Roosevelt has signed the nation's first peacetime draft bill and issued a proclamation setting October 16 as the day of registration when over 16,000,000 men between the ages of 21 and 35 inclusive will be required to register subject to call for training.

Under such a program, we of the medical profession must realize our imperative duty and the part we must play in this preparedness program, and we should accept, and I believe will assume, our responsibility in that same spirit of patriotism which has always prompted our actions in the past and will wholeheartedly respond likewise to the present great emergency.

We gave a good account of ourselves during the World War, over 30,000 members of our profession doing military duty with armed forces and a like number doing their part in a semi-military capacity, assuming their responsibility and duty in looking after the civilian population at home.

We cannot fall down in our duty to the present emergency and I urgently request you to cooperate in every way possible with the state and national draft boards and committees.

If you have not filled out the questionnaire sent to you by the American Medical Association, please do so at once. One of the chief objects of the questionnaire is to obtain first-hand information from you as to the service you are best fitted for or most desire, which facts, will permit your assignment to the best advantage to yourself as well as for the good of the service.

You must understand that this preparedness program is a plan in which the civilian population as well as the armed forces are to be cared for and I again appeal to you, in the name of duty and patriotism to fill out this questionnaire without delay and mail it to the American Medical Association. If by any chance you have misplaced or lost your questionnaire, I will be glad to mail you another on request.

Organization of the profession is going forward as rapidly as possible and we sincerely request your help and cooperation.

C. Grenes Cole, M. D.,
State Chairman of the American Medical Association Committee on Medical Preparedness.

ORGANIZATION OF STATE SOCIETY FOR EXAMINING DRAFTEES

Dr. C. Grenes Cole, Chairman of the Medical Preparedness Program, with the assistance of the several Councilors of the State Society, in cooperation with Dr. J. H. Musser as the Governor's representative, has arranged for practically every draft board to have excellent medical examiners. The doctors of the State who have offered their services for this purpose are to be congratulated wholeheartedly on their patriotic self-sacrifice. In addition to the examinations of the draftees, nine Medical Advisory Boards have been set up and organized by the same group. These Boards will also function as follows: Three in New Orleans, one in Monroe, one in Baton Rouge, one in Lafayette, one in Lake Charles and one in Alexandria. These Boards will have their headquarters at one or another of the hospitals in their respective districts. In New Orleans the three Boards will function respectively at the Charity Hospital, Touro Infirmary and Baptist Hospital.

POSTGRADUATE INSTRUCTION

On Monday, October 7, the Faculty of the School of Medicine of Tulane University will open a week of intensive postgraduate instruction. Organized under the Department of Graduate Medicine, these annual clinics or courses of instruction are becoming more and more important. Physicians from rather distant states are becoming more frequent attendants.

Practically the whole field of clinical medicine is covered by dry clinic, lecture and demonstration. Activities begin promptly at 8:00 a. m. daily and continue through the afternoon.

All licensed physicians are welcome. The only charge is the registration fee of $5.00.

SEVENTH DISTRICT MEDICAL SOCIETY

At a meeting held on Thursday, September 12, in Crowley, the scientific program was as follows: Dr. John H. Musser spoke on "The Contagious Diseases"; Dr. Lucien LeDoux gave a paper on "Therapy of Functional Uterine Bleeding," and Dr. Randolph Unsworth spoke on "Cerebral Tuberculoma." Dr. Stanley Peterman was host at a barbecue supper at the Crowley Country Club.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The annual written examination and review of case histories (Part I) for Group B candidates will be held in various cities of the United States and Canada on Saturday, January 4, 1941, at 2:00 p. m.

JUNIOR MEDICAL OFFICERS SOUGHT FOR GOVERNMENT SERVICE

The U. S. Civil Service Commission has announced examinations to fill two classes of junior medical officer positions (rotating internship and psychiatric resident) at St. Elizabeth's Hospital, Washington, D. C. The salary for the positions is $2,000 a year, less a retirement deduction of 3½ per cent and a deduction of $60 a year for quarters, laundry, and medical attention.

Further information regarding the examinations may be obtained from the Secretary of the Board of U. S. Civil Service Examiners at any first- or second-class post office, or from the U. S. Civil Service Commission, Washington, D. C.

PAY YOUR DOCTOR WEEK

"Pay-Your-Doctor Week," inaugurated two years ago by California Bank in Los Angeles on a purely local basis, will be observed this year from October 27 to November 2 in scores of cities throughout the country with banks in the various communities sponsoring the movement.

NEWS ITEMS

At the nineteenth annual scientific session of the American Congress of Physical Therapy, held in Cleveland, September 2-6, 1940, Dr. Nathan H. Polmer, president-elect, was inducted as president for the coming year. The subject of Dr. Polmer's presidential address was "The Evolution of Physical Therapy."

There is an opening for a physician in Jeanerette, Louisiana. Further information may be secured from the office of the Journal.

CORRESPONDENCE

British Consulate General,
New Orleans, La.,
September 7, 1940.

The Secretary,
Louisiana State Medical Society.
Dear Sir:

I should be grateful if you could give me any cooperation in the following matter:

His Majesty's Government would welcome applications for employment in the United Kingdom

Emergency Medical Service from approved doctors who are citizens of the United States of America, hold approved qualifications granted in the United States of America, and are licensed by the competent authorities to practice in one or more of the States.

Arrangements would be made to exercise emergency powers to register such doctors in the foreign list of the United Kingdom Medical Register for the period within which their services are likely to be required.

Those doctors claiming remuneration would receive salaries of the appropriate Emergency Medical Service grade, namely, £800 (surgeons of about 10 years experience) and £550 (general duty men of 3 to 5 years experience) per annum respectively with free board and lodging.

The intention for the present is to register the names of applicants, who would be called upon to proceed to the United Kingdom only as and when the need for their services had actually arisen. They would serve in a civilian capacity and there would be no question of their enrollment in the medical branches of the armed froces.

I should be very grateful if you would take what measures appear to you to be suitable to bring the above proposals to the knowledge of your members.

Yours faithfully,
D. J. Rodgers,
H. B. M. Consul General.

GOVERNMENT TO NEED TEMPORARY AND PART-TIME CIVILIAN MEDICAL OFFICERS

The expansion of the army creates a need for about 600 civilian medical officers in various grades for temporary and part-time service. The duties of full-time officers will be to act as doctors of medicine in active practice in hospitals, in dispensaries, and in the field. The duty of part-time officers will be to report for sick call at a fixed hour each day and to be subject to emergency call at all times.

The Civil Service Commission in making this announcement calls particular attention to the fact that part-time officers will be able to continue their regular practice. In order that this may be done, appointments to the part-time positions will be made of medical officers in the vicinity of the place of duty.

Information concerning these positions may be obtained from the Secretary of the Board of U. S. Civil Service Examiners at any first- or second-class post office, or from the United States Civil Service Commission, Washington, D. C. Physicians are urged to apply at once. This work is of the greatest importance to the success of the National Defense Program.

INFECTIOUS DISEASE IN LOUISIANA

The weekly morbidity report the Bureau of Epidemiology of the Louisiana State Board of Health for the thirty-fourth week of 1940, ending August 24, showed that next to syphilis, which headed the list with 236 cases, hookworm had the next largest number of cases reported. There were 70 cases of hookworm infection listed this week as against no cases for the previous week and only eight for the same week in 1939. There was also a great increase in the number of reported cases of whooping cough, there being 57 cases this week in contrast to the eight reported last week and three reported for the same week of 1939. There was an increase in the number of cases of pulmonary tuberculosis to 47, and the 34 cases of pneumonia, 36 of cancer, 26 of gonorrhea, 10 of poliomyelitis were all increases over the previous week. The number of malaria cases had decreased to 18 instances from 38. There were 24 cases of typhoid fever, only one of which was reported from Orleans Parish. Of the total number of 10 cases of diphtheria, six were reported from Orleans Parish, the largest incidence in any one parish. Four cases of typhus fever were reported from East Baton Rouge, Orleans, Ouachita, and Vermilion. Two cases of diphtheria, two cases of poliomyelitis, and one case of typhoid fever reported in New Orleans were imported. In the next weekly report, ending August 31, the incidence of hookworm disease had dropped again to two reported cases. As noticed in the previous summary, this high incidence of hookworm disease must be the result of some type of routine survey. While syphilis headed the report as usual, the number of cases had decreased to 150; likewise, there was a decrease to 33 cases of cancer, 31 of pneumonia, 35 of pulmonary tuberculosis, 10 of gonorrhea, 11 of malaria, five of diphtheria, and seven of poliomyelitis. There were two cases of undulant fever from Caddo reported for this week. For the week ending September 7, the reported cases of gonorrhea had increased to 70. There were 25 cases of typhoid fever reported of which six reported by the New Orleans City Board of Health were imported. Syphilis accounted for 249 reported cases as against 148 for the same week of the previous year. Pneumonia had decreased to 21 cases, though this number showed an increase over the 12 reported cases for the same week of 1939. Gonorrhea led the list with 43 cases for the thirty-seventh week, ending September 14, with the exception of the usual large number of reported cases of syphilis, namely 179. On the whole, the reported cases for this week showed a definite decrease in all the more commonly reported diseases. There was a case of leprosy reported this week as having been imported to the City of New Orleans.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, reported 130 deaths in the City of New Orleans for the week ending August 17, 1940. This compared favorably with the three year average death rate of 145 for the corresponding week of 1937-1939. Of the total deaths, 76 were white and 54 negro. There were 15 deaths under one year of age, eight white and seven negro. In the following week, ending August 24, the total deaths had increased to 149, and the infant deaths to 17. The proportion between white and negro deaths remained about the same, namely 90 white and 59 negro, and was about the same as the total deaths reported for the three year average. In the week ending August 31, the number of deaths was approximately the same, 148; the infant deaths had decreased to 12. This total number was a decrease of three over the average for the three years ending 1939. The total number of deaths of 118 for the week ending September 7 showed a definite decrease from the previous week and also from the three year average for that week, 128; likewise, the deaths under one year of age had decreased to six as compared to 12 for the previous week and 17 for the three year average. Of the total deaths 86 were white and 32 negro; in the infant deaths four were white and two negro.

MARGARET PAULINE H. BOWDEN

(1877-1940)

On September 5, 1940, the medical profession was sorrowed by the loss of Dr. Margaret P. H. Bowden, of New Orleans. A graduate of Tulane University Class of 1919, Dr. Bowden was one of the first two women to take the full four year course at Tulane, and one of the first two women interns at Charity Hospital. She was appointed an intern in pathology, and later served as assistant pathologist of Touro Infirmary and Charity Hospital, and as a member of the faculty of the Tulane University School of Medicine.

She had been a member of the State Medical Society since her graduation in 1919.

ABRAHAM LOUIS LEVIN

(1880-1940)

Dr. A. L. Levin, well-known gastroenterologist of New Orleans, died September 15, 1940. Professor of Gastroenterology at Louisiana State University and Chief of the Gastroenterological Section at Charity Hospital, Dr. Levin was nationally known. In 1921 he designed the duodenal tube which bore his name.

A native of Suwalki, Poland, he was graduated from Tulane University in 1907 and was associated on the staff of Touro Infirmary for many years.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Parish Medical Society held its first meeting at the Lotus Club on September 12. The hostesses on this occasion were Mrs. C. B. Flinn, Mrs. J. W. Cummins, Mrs. L. L. Shlenker, and Mrs. John Bostick.

Mrs. A. D. Tisdale, presided over the meeting and introduced the guest speaker, Dr. D. T. Milam, President of the Ouachita Parish Medical Society, who gave a most interesting address on the "Medical Care of Soldiers during War Maneuvers." Mrs. Rogers read an article on "Traditions of Medicine" by Dr. Charles Heyd.

The aims and projects of the auxiliary, namely Hygeia, philanthropic activities, doctors' day, indigent physicians' fund, public health education, anti-tuberculosis campaign, entertainment for Southern Tuberculosis Convention, entertainment for graduating class of nurses at St. Francis Sanitarium, were discussed. Two new members, Mrs. Edmond Campbell and Mrs. Glenn Gallaspy, were introduced to the Auxiliary.

The officers and chairmen of standing committees were presented, as follows: president, Mrs. A. D. Tisdale; president-elect, Dr. D. T. Milam; first vice-president, Mrs. R. W. O'Donnell; second vice-president, Mrs. I. J. Wolff; treasurer, Mrs. H. V. Collins; recording secretary, Mrs. Henson Coon; corresponding secretary, Mrs. Prentice Gray; publicity secretary, Mrs. C. B. Flinn; historian and exhibit, Mrs. John Bostick; parliamentarian, Mrs. Clifford Johnson; program chairman, Mrs. Armand McHenry; courtesy and visiting chairman, Mrs. A. L. Peters; telephone and membership, Mrs. C. H. Hill; education and Hygeia, Mrs. R. W. O'Donnell; anti-tuberculosis campaign, Mrs. I. J. Wolff; public relations, Mrs. J. P. Brown; doctors' day, Mrs. D. T. Milam; indigent physicians' fund, Mrs. H. V. Collins.

Mrs. C. B. Flinn,
Press and Publicity Chairman.

Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Press and Publicity Chairman.

BOOK REVIEWS

Problems of Ageing: Edited by E. V. Cowdry. Baltimore, Williams & Wilkins Co., 1939. Pp. 758. Price $10.00.

The problems of ageing continue to attract the attention of increasingly larger numbers of physicians and their allies in kindred professions. There can be no question but that in a community and time like the one in which we now live, and in which it is readily apparent to all serious students that the percentage of older men and women is a proved reality, the profession will be obliged to engage in a much greater activity in the treatment and prevention of diseases peculiar to old age. It is then a matter of more than passing comment to note the appearance of this magnificent symposium on the ageing individual. The contributors are authorities in their chosen fields and a recital of the names reads like a "Who's Who" in science.

Ageing is dealt with in its biologic and medical aspects. Thus one notes in the contents such discussions as ageing in plants, in insects, in vertebrates, and in invertebrates. A statistical study of longevity as well as a study of human cultural levels is considered. In addition one notes discussion of ageing in the vital organs, the humors and the endocrines of the body. Other chapters deal with psychologic and chemical aspects of ageing and the relationship of ageing to resistance of disease. Finally, ageing from the viewpoint of the clinician is a splendid closing to a book replete with scholarly and authoritative presentations.

The introduction by the philosopher John Dewey is excellent, especially as it reveals to the physician the serious implications of ageing as it affects the social and economic structure of our present civilization. Each chapter concludes with a summary and a bibliography. The viewpoint of each author is peculiarly his own, but so fine a work has Cowdry done as editor that one feels in reading the book the thread of continuity woven through its entire length, and appreciates the invaluable contributions to the prolongation of life, the lessening of its handicaps and the course of future studies pertinent to biologic old age. This book must, for us, become a standard work in a field of medicine most emphatically asserting its great and growing importance in the future practice of the physician.

I. L. Robbins, M. D.

Index of Treatment: Edited by Sir Robert Hutchison, Bt., M. D., LL. D., P. R. C. P., Baltimore, Williams & Wilkins Co., 1940. Pp. 996. Price $12.00.

Any volume which has passed through twelve fully revised editions between 1907 and 1940, must have filled a much needed place in the literary armamentarium of large groups of doctors.

The preface to the first edition indicated clearly in one sentence the object of the volume:

> "The present work is intended to provide the practitioner with a *complete* guide to Treatment in moderate compass, and in a form convenient for reference."

The modest desire on the part of the authors to encompass within the covers of a single volume, an encyclopedia of all branches of medicine is a rather pretentious effort. Encyclopedias and compends serve a useful purpose for those who either have not the time, or the inclination, to provide themselves at first hand, with modern, current, scientific, progressive methods. Such a volume as the "Index of Treatment" is bound to serve a useful purpose to the above group. It is manifestly impossible for any one or any group of editors to encompass the entire field of medicine adequately within the limitations of a single volume.

Probably the most valuable chapter from the standpoint of the type of reader who will utilize such a volume and make it a guide for his treatment, is the introductory chapter, written by Sir Robert Hutchison. The advice contained in this introductory chapter might well be published as a separate essay, and this used as a guide independently of everything else in the volume:

> "Let the plan be as simple as possible, for like most good things in life, successful treatment is usually simple. All elaborate and minutely detailed schemes are to be shunned; they generally partake of the nature of the cure which is worse than the disease. In a word, beware of fussiness."
>
> "Faddiness must be eschewed at all costs."

In the last paragraph of the introduction Sir Robert Hutchison, gives one admonition which would be wise for all to follow:

> "It is well to remember always the limitations of treatment—not merely that some diseases are, of their very nature, insusceptible of cure, and can only be alleviated symptomatically; but there is in the course of every mortal illness a stage beyond which further curative treatment is not only useless but cruel."

One will find that many a chapter within this encyclopedic volume would prove valuable for ready reference. For those who must have an immediate short, concise, and authoritative volume of this kind, I believe the "Index of Treatment," will serve a useful purpose.

Isidore Cohn, M. D.

Chemistry of the Brain: By Irvine H. Page, A. B. (Chem.), M. D. Springfield, Ill., Charles C. Thomas, 1937. Pp. 444. Price $7.50.

This book is a compendium of virtually all of the pertinent data which may have a bearing upon the chemistry of brain and central nervous system tissue. Certainly it is the most detailed and informative work on this subject to be found in the literature.

Approximately one third of the book concerns itself with the various phases of lipid chemistry and metabolism, especially in so far as these involve nerve tissue. There are several comprehensive sections on carbohydrates and nitrogen metabolism and several other phases of nerve tissue physiology.

Dr. J. A. Quastel has contributed a chapter on oxidation reduction mechanisms which is one of the highlights of the book.

It is suggested that the book will find most favor with those interested in nerve cell physiology, and to a lesser extent with those dealing with the clinical manifestations of nerve tissue disorders. Encyclopedic in its scope, the book requires fairly adequate technical training to be comprehensible to the reader.

Samuel B. Nadler, M. D.

Artificial Pneumothorax: Contributions by Saranac Lake Physicians to the Studies of the Trudeau Foundation: Editorial Committee: Edward N. Packard, M. D., John N. Hayes, M. D., Sidney F. Blanchet, M. D. Philadelphia, Lea and Febiger, 1940. Pp. 300. Price $4.00.

Since the publication of Clive Riviere's work on artificial pneumothorax in 1927 there has been no new English or American manual on pneumothorax therapy. In that interval the use of this method of treatment for pulmonary tuberculosis has increased tremendously. Therefore a definite need is now filled by this book on the practical application of artificial pneumothorax by the physicians of Saranac Lake. It is a concise and practical guide to the proper use of this form of therapy in pulmonary tuberculosis. The chapters on the physiology of pneumothorax, selection of cases, application, technic of the operation, conduct of treatment, and duration and termination of treatment are especially valuable in this respect. The chapters on accidents during the operation and on pleural complications should be carefully studied by the physician before undertaking or advising pneumothorax treatment casually. The chapter on results gives a broad, unbiased summary of the experience with artificial pneumothorax in Saranac Lake over a period of many years. It indicates fairly and conservatively what may be expected from this form of treatment when properly applied.

Dr. Packard and his associates are to be congratulated upon furnishing the medical profession with this excellent and useful book. It is highly recommended as an addition to the working library of every physician who is either doing or contemplating artificial pneumothorax therapy.

J. L. Wilson, M. D.

In Memoria del Prof. Fabio Rivalta: La "Reazioni di Rivalta Scritti Medici in Suo Onore": By Società Medico Chirurgica di Romagna. Faenza, Fratelli Lega, 1939. Pp. 398.

As the title indicates this volume is dedicated, by the "Società Medico Chirurgica di Romagna" to the memory of Professor Fabio Rivalta, whose test, known as the "Reaction of Rivalta," is well known throughout the medical world.

Contributing to this volume are many outstanding medical men, namely: Internists, obstetricians, surgeons, and others, who have had experience in the use of the Rivalta test. Many of the men who contributed to this fine little volume were colleagues and former students of Professor Rivalta.

The studies of each contributor in his use of the Rivalta test have been reported in individual papers, making up the entire volume, from the point of view of many fields in medicine and surgery. The reader who is interested in this reaction, is referred to each individual article which explains the use of this test in the particular field of medicine in which he is interested. A discussion of the use of this test in each particular field of medicine would be entirely too lengthy for this review. The laboratory diagnostician, as well as the internist, will find in this volume an interesting amount of valuable information.

Frank L. Loria, M. D.

Introduction to Dermatology: By Norman Walker, Kt., M. D., LL. D., F. R. C. P., and G. H. Percival, M. D., Ph. D., F. R. C. P. Baltimore, The Williams and Wilkins Co., 1939. Pp. 391. Price $7.00.

A book of this size does not profess to be a standard text in dermatology, but covers the main diseases and material placed before students during their undergraduate work.

The arrangement of the material is excellent, as are the illustrations. The methods of treatment are not those generally followed in this country. The section on syphilis is very poor and detracts from the value of the book. There is no mention of sarcoidosis in the book, a subject which should have been included. The section on pellagra is not up to date, no mention having been made of vitamin deficiency. The book could be usefully read, however, by one wishing to acquaint himself with the general principles of dermatology.

Barrett Kennedy, M. D.

PUBLICATIONS RECEIVED

J. B. Lippincott Company, Philadelphia: Management of the Cardiac Patient, by William G. Leaman, Jr., M. D., F. A. C. P.

W. B. Saunders Company, Philadelphia: Physical Diagnosis, by Ralph H. Major, M. D. A Textbook of Medicine, edited by Russell L. Cecil, A. B. M. D., Sc. D.; Associate Editor for Diseases of the Nervous System, Foster Kennedy, M. D., F. R. S. E

New Orleans Medical
and
Surgical Journal

Vol. 93 NOVEMBER, 1940 No. 5

CARCINOMA OF THE PANCREAS:

WITH A CLINICAL REVIEW OF EIGHT CASES*

T. P. LLOYD, M. D.†
AND
W. F. DRUMMOND, M. D.†
SHREVEPORT

Carcinoma of the pancreas was first described by Mondiere in 1836 but little was added to the clinico-pathologic picture until recent years. A revival of interest in these tumors followed the first successful resection of the tail of the pancreas for hyperinsulinism due to islet tumors. Additional interest was noted when occasional reports of successful removal of malignant tumors were published.

Cancer of the pancreas accounts for between 1 and 2 per cent of all malignant tumors,[1] but this condition is more prevalent than these figures would lead one to believe. Between the years 1928 and 1930 cancer of the pancreas accounted for 4.8 per cent of all cancer deaths in the hospitals of Massachusetts.[2] Hoffman,[3] in 1931, reported that 4,000 deaths a year in the United States were due to carcinoma of the pancreas. Rivers found that approximately half of the men 40 years or more of age who came to the Mayo Clinic primarily because of dyspepsia had gastrointestinal or accessory gastrointestinal disease. Every sixth man of this group was found to have cancer of the stomach, pancreas or intestine.

SYMPTOMATOLOGY

A lengthy discussion of the symptomatology and diagnosis of cancer of the pancreas is not warranted but a few timely points should be mentioned. Bard's and Pic's[4] description, in 1888, of the "pancreatico-biliare" syndrome of continuous painless jaundice, distended gallbladder, cachexia and weight loss is familiar to all; but we now know that painful jaundice is present in 76 per cent of these cases.[1] Chauffard's "pancreatico-solaire" syndrome, first described in 1908, comprises about 10 per cent[6] of all pancreatic carcinoma. Attacks of severe pain due to pressure of the tumor mass on nerves and blood vessels behind the pancreas are often diagnostic problems of considerable magnitude. In such cases jaundice and distention of the gallbladder are rare and terminal in nature.

The occurrence in a man at middle life of digestive disturbances, epigastric fullness and discomfort, pain and weight loss, warrants a thorough study by all available means. Complete roentgenologic examination of the gallbladder and gastrointestinal tract is indicated. By these studies a wide sweep of the duodenum around the head of the pancreas may be noted. The greater curvature of the stomach may be encroached on by an obviously extra-gastric lesion. Biliary drainage may demonstrate the presence of blood and suggest cancer of the pancreas. Blood may be persistently present in the stools of those cases in which the tumor has invaded the duodenum or stomach. Repeated studies for the possibility of an increase in serum bilirubin may reveal sufficient further evidence to warrant exploration of the upper part of the abdomen. Pancreatic duct obstruction due to an encroaching tumor mass may result in atrophy of the islet tissue and produce a clinical picture of mild diabetes mellitus.[7] Psychoneurosis or intestinal neurosis is a frequent diagnosis in cases of cancer of the pancreas.[8] Recently it has been observed in cases of obstructive jaundice due to stone that the initial average prothrombin concentration was much higher than in cases in which obstruction was due to carcinoma. The response to vitamin K therapy was more rapid, the dose smaller and the final preoperative prothrombin concentration was nearer normal in cases in which the obstruction was due to stone.[9]

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

†From the Department of Medicine, Highland Clinic, Shreveport, Louisiana.

TREATMENT

It must be recognized that abdominal exploration in cancer of the pancreas carries a mortality often quoted as high as 14 per cent. The average length of life after exploration is less than when no operative procedure is performed.[10] Postoperative hemorrhage is the greatest single cause of death in patients with obstructive jaundice, one-third of all postoperative deaths being attributable to this cause.[11] The fear of postoperative hemorrhage has handicapped the surgeon. Recent developments in the diagnosis and treatment of this hemorrhagic tendency should result in a marked diminution in hemorrhage as a postoperative complication and should open the field for a more radical surgical attack on neoplasms of the pancreas.

Although it is still a controversial question, some authorities believe that pancreatic malignancies are quite sensitive to radiation. Lahey[1] reports that regardless of the type of operative procedure, radiation therapy doubles the life expectancy. With added experience in this field it is felt that more can be offered to these patients in the future than has been in the past.

A number of palliative surgical procedures may be carried out for common duct obstruction due to cancer of the pancreas. If the gallbladder has not been removed at a previous operation, cholecystogastrostomy, cholecystoduodenostomy, cholecystojejunostomy, or cholecystostomy may be performed. In cases in which a cholecystectomy has been performed one is left with only two alternatives, either choledochoduodenostomy or simple drainage of the common duct with a T-tube. The procedure of choice depends upon the condition of the patient, the degree of dilatation of the common duct, and the accessibility and mobility of the descending portion of the duodenum. Cholecystogastrostomy is an undesirable surgical procedure, for often powerful gastric peristaltic waves force gastric contents into the smaller bile passages. The stomach wall is thick and has a loose redundant mucosa which makes accurate anastomosis to a stretched out thin-walled gallbladder difficult. One side of the sutured viscera is fixed and the other side moves with digestion or vomiting; hence, this suture line must be exposed at times to considerable strain.

Cholecystoduodenal anastomosis is also hazardous, for both structures are relatively fixed and accurate approximation is difficult. The rise and fall of the liver with diaphragmatic motion which at times is quite violent must jeopardize the security of this suture line.

By attaching the jejunum to the liver capsule at the time of the cholecystojejunostomy the objections to the two other procedures are overcome. This is the operative procedure of choice and the one most frequently employed at present.

An analysis of a large series of cases of cancer of the pancreas does not appear frequently. Although this series contains only eight cases, a few observations are worthy of comment.

DISCUSSION

The diagnosis was made in each case either from the operative findings, biopsy, or necropsy. The average age of these pations was 54 years, with a range from 43 to 65 years. Five of these cases were in the fifth decade. There were five men and three women.

The average duration of the disease before admission was three months, with a range from one to five months. It was not until severe pain, loss of weight, or jaundice appeared, that these patients came to the hospital. Loss of weight was recorded in six cases, the average amount being 26 pounds, with a range from 15 to 37 pounds. Pain was part of the presenting symptom in all patients, though a constant type and distribution were lacking. Jaundice was present in all cases with an average icterus index of 90 in the six cases in which determinations were made, the range being from 10 to 200. Clay colored stools were noted in five cases.

Abdominal tenderness was present in all cases, and muscular rigidity was conspicuously absent. In only one case was a palpable gallbladder noted. In only three of the cases was a palpable liver present at the time of admission, though at the time of operation or autopsy six of the eight cases showed a distended gallbladder and an enlarged liver. This cannot be attributed to a clinical error because of the interval of time between the date of admission and the latter observation.

Gastrointestinal roentgenograms were made in three cases, and were repeated in one case, and at no time were positive or suggestive findings noted. This is not in accord with clinical findings elsewhere where positive roentgenograms were noted in 76 per cent of the cases reported from one clinic.[1]

Duodenal drainage was done in only one case, with both bile and blood being obtained.

Fasting blood sugars were obtained in four cases with 155, 145, 125, 108 mgm. respectively. At necropsy the first case showed considerable atrophy of the pancreatic parenchyma probably due to pancreatic duct obstruction.

A cholecystojejunostomy was done in three cases, cholecystogastrostomy in one case, a cholecystectomy in one case and a simple abdominal exploration in the remaining case. The case in which cholecystectomy was performed showed innumerable gall stones. It is noteworthy that Walters[12] in a recent review of extra-hepatic surgery from Mayo Clinic states that he has never seen gall stones and primary pancreatic carcinoma in the same patient. All patients survived the operation and were uncomplicated by postoperative bleeding, even though the icterus index in four cases averaged 112 units. Prothrombin determinations were not performed. All of the patients had a progressive loss of jaundice following operation, with complete clearing of the skin or subclinical icterus occurring anywhere from 10 to 24 days postoperatively. The average length of life after operation was four months in the five cases that could be followed. Radiation therapy, though considered in one case, was not given.

CONCLUSIONS

1. Early diagnosis is paramount if life expectancy is to be increased.
2. Biliary drainage should be done on all cases of the middle aged, dyspeptic group.
3. Fasting blood sugar determinations are often of considerable diagnostic value.
4. Subclinical icterus values (9-13) are often sufficient added evidence to warrant exploration, especially if such are rising.
5. By the use of vitamin K and bile salts the postoperative mortality in obstructive jaundiced patients should be reduced by one-third. Though still in the experimental stage prothrombin determinations might aid in the diagnosis of the clinically obstructive jaundiced patient.

REFERENCES

1. Lahey, F. H., and MacKinnon, D. C.: Carcinoma of the pancreas, Surg. Clin. N. A., 18:695, 1938.
2. Bigelow, G. H., and Lombard, H. L.: Cancer and Other Chronic Diseases in Massachusetts. Boston, Houghton Mifflin Company, 1933. p. 264.
3. Hoffman, F. L.: San Francisco Cancer Survey, Seventh Preliminary Report. Newark, N. Y. Prudential Press, 1931. p. 218.
4. Bard, L., and Pic, A.: Contribution a l'etude clinique et anatomopathologique du cancer primitif du pancreas, Rev. de med., 8:257, 1888.
5. Chauffard, A.: Le cancer du corps du pancreas, Bull. l'Acad. de med., 60:242, 1908.
6. Leven, N. L.: Primary carcinoma of the pancreas, Am. J. Cancer, 18:852, 1933.
7. Hick, F. K., and Mortimer, H. M.: Carcinoma of the pancreas, J. Lab. & Clin. Med., 19:1058, 1934.
8. Yaskin, J. C.: Nervous symptoms as earliest manifestations of carcinoma of pancreas, J. A. M. A., 96:1664, 1931.

9. Stewart, J. D., and Rouke, B. A., et al.: Control of postoperative bleeding in obstructive jaundice, Ann. Surg., 110:693, 1939.

10. Clute, H. M.: The problem of cancer of the pancreas, J. A. M. A., 107:91, 1936.

11. Crile, G., Jr.: Recent advances in the treatment of obstructive jaundice, Cleveland Clinic Quarterly, 6:116, 1939.

12. Walters, Waltman: Lesions of the extra-hepatic biliary tract, J. A. M. A., 111:2477, 1938.

DISCUSSION

Dr. Allan Eustis (New Orleans): When Dr. Drummond sent me his paper I thought at that time it was a very timely subject, but since he states that he has had three more cases since writing the paper, I am even more persuaded that it is timely. I looked over my records in the office since 1911, and found only three cases of primary carcinoma of the pancreas. I was always under the impression that it was a comparatively rare condition, but he has seen so many patients in such a short time, that I will have to alter my opinion.

There is not a great deal I can add, but I would like to elaborate on some of the points made. Dr. Drummond stated that 76 per cent of these patients with chronic jaundice had pain. I have forgotten the name of the man at The Mayo Clinic who claimed that chronic jaundice without pain is pathognomonic of pancreatic carcinoma. You may have pain with jaundice, but absence of pain with jaundice is more than suggestive of carcinoma of the pancreas, that is, chronic pronounced jaundice.

One other point is very important. I may have gotten the wrong impression, but he states that the mortality in persons who had exploratory laparotomy was 14 per cent, and that those not operated on live longer than those who are. I think probably he did not mean to advocate not exploring these patients, because as he goes on he mentions that the treatment is surgical. The importance of an exploratory operation is well exemplified in two cases I want to report.

The first case is that of Mrs. J. W., 68 years of age, with painless jaundice of two months' duration. I treated her in 1926 and saw her again in 1939. I treated her in 1926 for chronic cholecystitis and chronic pancreatitis. She had non-painful jaundice of two months' duration in 1939; I referred her to Dr. Urban Maes, who operated on her and found a distended gallbladder. The gallbladder was very large with thin walls. There was a large mass in the head of the pancreas, a mass of glands extending up and down the peritoneal space and a diagnosis of carcinoma of the pancreas was made. Cholecystojejunostomy was done, anastomosis being made in the first portion of the jejunum. She had no evidence of postoperative complications and was discharged on May 10. I heard from her about seven months ago; she had gained 25 pounds in weight and was in perfect health; no more jaundice, and has had no symptoms of any malignancy.

A case prior to this impressed upon me the importance of draining these gallbladders and not just closing up the abdomen. This case was one that I thought certainly had carcinoma of the head of the pancreas, but having seen this case in 1920 with Dr. Carroll Allen, I said, "Let's drain the gallbladder, maybe there is no malignancy." In 1920, she came with painless chronic jaundice. She had already been operated on in 1916 and her gallbladder drained. At that time, Dr. Allen and I decided not to remove the gallbladder although she had gallstones. She had again obstructive painless jaundice. We decided to wait a month. She came back in a month and Dr. Allen operated on October 6, 1920. Operation was through a high midline incision. Adhesions were encountered—to make a long story short—apparently there was a definite pancreatic carcinoma; the common duct was drained for several months. That woman is still alive today, without any jaundice and without any symptoms of carcinoma. So when you do an exploratory laparotomy, do a drainage of the gallbladder or common duct and do not just close the abdominal incision with the idea that the case is hopeless. There maybe a chronic fibrosis of the pancreas instead of a carcinoma.

Dr. Ambrose H. Storck (New Orleans): Both the essayist and Dr. Eustis have already indicated the need for surgical intervention in cases of carcinoma of the head of the pancreas. The unusually high survival rate in the group of cases presently reported is remarkable. The average mortality following exploration or performance of short circuiting operations for relief of the biliary obstruction caused by carcinoma of the head of the pancreas is usually about 14 per cent.

Several recent developments applicable in the management of such cases should result in a general lowering of the mortality near to that which was attained in the series of cases presented by Drs. Lloyd and Drummond. Ansbacher found that the synthetic substance, methylnaphthoquinone, has an action very similar to vitamin K; Macfie, Bacharach and Chance found that if this substance is given intramuscularly in corn oil, a lowering of prothrombin time as much as 48 per cent can be accomplished in eight hours. The demonstration of the effectiveness of this substance administered parenterally indicates the possibility of relieving the hemorrhagic diathesis present in cases of carcinoma of the head of the pancreas even in the presence of nausea, vomiting, or severe diarrhea. Andrus and Lard have very recently reported their experience with methylnaphthoquinone in the April 6 issue of the Journal of the American Medical Association.

Zollinger's method of performing a valvular cholecystgastrostomy is intended to prevent the undesirable regurgitation of stomach content into the gallbladder and biliary tree, an occurrence which so often vitiates the good results of cholecystgastrostomy. The procedure employed by the authors, that is, cholecystjejunostomy, may be preferable to any type of cholecystgastrostomy or cholecystduodenostomy.

The report of Pack and McNeer concerning radiation therapy in the management of carcinoma of the head of the pancreas deserves consideration. These observers do not advocate dependence on radiation therapy alone but advise its use in conjunction with biopsy and abdominal exploration. Such a plan of therapy in their hands has been rewarded with better than average results.

Although radical extirpation of the carcinoma bearing portion of the pancreas has been reported, such a procedure is probably applicable only in occasional particularly good risk cases. Short circuiting operations in conjunction with adequate preoperative and postoperative care of patients with carcinoma of the head of the pancreas will probably remain as the operation of choice for some time to come.

The administration by mouth of pancreatic enzyme preparation to compensate for the deficiencies of these substances resulting from obstruction of the pancreatic duct is usually neglected. Especially in the instance of long standing biliary and pancreatic obstruction, such substitution therapy is of obvious value.

Dr. G. G. McHardy (New Orleans): It is only occasionally that one encounters carcinoma limited to the tail of the pancreas. Extremely rarely is a clinical diagnosis made due to the paucity of symptoms referable to pancreatic involvement and definite lack of what is called a "clinical syndrome." At Touro within the past eight months we had two patients studied peritoneoscopically and by this procedure made a prenecropsy diagnosis.

The first patient was a 46 year old woman who had complained so bitterly of "gas" that she was considered functional and wandered from Charity to Tulane to Touro and for six months prior to our study frequented the neuropsychiatric service. Investigation of her case revealed manifestations simulating steatorrhea with quite marked avitaminosis which did not respond to the usual measures. Peritoneoscopy revealed hepatic metastases. Six months later at autopsy, the primary lesion was found well localized in the pancreatic tail. Whether exploration earlier in the illness would have revealed the lesion and permitted curative resection is problematic.

The second case was an obese male with ascites. Peritoneoscopy revealed the omentum and peritoneum studded with neoplastic nodules. This clinical history was of only three weeks' duration. Certainly, an earlier diagnosis was not available.

We feel that as yet the facilities for making an early diagnosis of carcinoma of the pancreatic body and tail are not yet available.

Dr. W. F. Drummond (Shreveport): Dr. McHardy said that there was no typical symptomatology of carcinoma of the tail of the pancreas. Carcinoma of the tail of the pancreas occurs in approximately 10 per cent of all pancreatic cancer, and it does present a fairly typical clinical picture. In cases with only idiopathic steatorrhea, such occurs rather rarely; but a chronic idiopathic steatorrhea as part of the clinical picture will occur in something like 40 per cent of all carcinoma of the tail of the pancreas. As mentioned in the paper, Dr. McHardy's and other cases have frequently been called "intestinal neurosis."

I mentioned that 14 per cent was the mortality for abdominal operation. That has hindered the surgeon, but as Dr. Storck said, it is with vitamin K, and not koagamin which has been used erroneously by many men, that perhaps in the future the surgeon will attempt a resection of the pancreas in such cases. In none of our cases did we use vitamin K. It was not available at the time these cases came to our attention, but we had no mortality.

I seriously doubt the diagnosis in any case of carcinoma of the pancreas without biopsy, operated upon and diagnosed as cancer of the pancreas, that lives ten months. That is why our cases were reported as proved by operative biopsy or necropsy.

THE CAUSE AND PREVENTION OF THE LOSS OF TEETH*

C. C. BASS, M. D.†
NEW ORLEANS

Practically all loss of teeth is the result of either caries or periodontoclasia. Often both diseases exist for a long time before a given tooth is finally lost from either. These diseases and the resulting loss of teeth are so prevalent that they are generally considered to be necessary and unavoidable burdens of life. Loss of teeth increases and advances so certainly as age advances, that it is generally considered, even by physicians and dentists, to be a part of the aging process and actually always to be expected, if one lives long enough. We are so accustomed to our own association of bad teeth, absence of teeth and the makeshift of artificial teeth, with advancing age, until we are hardly prepared to realize the fact that these conditions are entirely preventable and unnecessary at any age.

Even the physisian, who should be in better position than others, to realize the harmful effects of the loss of teeth upon health and comfort throughout life and actually upon the length of life itself, is usually quite indifferent and neglectful of the matter. Not only does he surely have periodontoclasia himself, and most likely caries also, from which he gradually loses his teeth as he grows older, but if he looks for it he finds the same condition in practically every adult patient he examines. He does nothing that effectively prevents the loss of his own teeth, or to help his patients save theirs.

---

*Read before the Orleans Parish Medical Society, July 8, 1940.

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana.

Many a medical history includes such notations in the physical examination record as "oral hygiene poor, bad or very bad", so many "teeth absent." In most instances nothing further is said or done about it. Seldom does one find any record of the patient's being advised of the importance of the matter; nor is any such advice given. Neither is he instructed how to take care of his teeth and to save them against any further deterioration, or impressively informed that it can and should be done.

About all that a physician does for his patient concerning the health of his teeth is to refer him to the dentist. Physicians place about the same amount of blind faith in the ability and interest of the dentist to render the dental health services needed, as the layman is expected to place in him (the dentist). He does not venture to question the qualifications or disposition of the dentist, not only to diagnose and properly treat the damage that has already occurred, but especially to advise and help the patient to prevent any further progress of the deterioration of his teeth.

If the physician will only be a close observer in this regard and will allow himself to see what he sees, he will learn in most instances that the dentist, to whom he refers his patients or the one whom he consults for his own personal dental health service, is losing his own teeth from the very diseases for which treatment, and especially prevention, is needed by almost everybody. If the physician allows himself to think and to see, he will realize that he and his patients who are under the care, more or less, of their respective dentists, are surely losing their teeth, as the years go by, regardless of the fact that the usual advice to "see your dentist twice a year" is faithfully followed.

Casual observation of people as they talk and laugh reveals only the gross diseases and abnormalities of the teeth and the absence of some that have already been lost. More thorough examination reveals a much worse state of affairs than was thought. That is especially true with regard to periodontoclasia which is usually much more prevalent and much further advanced than either the casual observer or even the patient himself realizes.

Nowadays, in the special features at the picture shows, one sees and hears brief talks from a great many of the foremost people in private and in public life. It is impressive to note how many of them have perfectly obvious absence of a part of their teeth, diseases from which others will be lost, and artificial, often misfitting substitutes. I mention this to emphasize the fact that those who should be able to have every advantage available, do not now receive the dental health-service and information which are necessary to prevent the loss of teeth. The economic, cultural, educational and commanding environmental status of such people as I suggest places them in the best position to have the best dental health service available in the land. They are able to pay for it, they should appreciate the need, they should know what can be done and they are in a position to demand the best. If those who have every reason not to lose their teeth are doing so anyway, what can be expected for those who are in less advantageous position in this regard? The truth is that this deplorable situation with regard to oral health runs through all walks of life and that more or less disease and loss of teeth sooner or later afflicts practically all people. In most people it begins even before adult age is reached. To whatever extent these conditions have developed at any age, the unfortunate individual goes through the remainder of his life thus handicapped.

If all this is true, and it surely is, as to the almost universal prevalence of the conditions and as to the present extremely inadequate oral health service and oral health advice now available, then there is urgent need for an awakening to the situation and for steps to be taken to make available to all people correct information as to the cause of the loss of teeth and how it can be prevented.

The layman does not know why he loses his teeth. Often he thinks it is because he has "soft teeth", or bad teeth or just because it is natural for nearly everybody to lose them as the years go by. In many instances the other members of his family also have the same kind of so-called bad teeth and they all feel that there is nothing to do about it except to get dental repair work done from time to time and finally lose them all and get artificial teeth or have none, as the financial circumstances will permit.

Such woeful ignorance and blindness to the facts and the amazing gullibility of people in general for quack remedies, make this one of the most productive fields there is today for proprietary remedies and other nostrums. The harangue of high pressure sales talks and advertising of dentifrices (from "powder", to "paste", to "liquid") is to be heard over the radio every day and almost every hour of the day. Other channels of advertising are full of it too. All kinds of claims for superiority or of special benefits are made for each, when the truth is that one cannot save his teeth by the use of any such remedy, and further that he can save his teeth as well or better without using them. If these remedies did no other harm, the promotion of their use and the false claims made for them, lead to placing reliance in them and neglecting the care that is necessary to save the teeth.

It is a fact that some teeth are harder and more resistant to decay than others. Notwithstanding some variation in this regard in the teeth of different individuals, no tooth is soft enough to decay if it is kept clean. A clean tooth does not decay.

CARIES

Dental caries is caused entirely by the breaking down or decomposition of carbohydrate containing food retained on and between the teeth, by the action of aciduric bacteria. Such bacteria, as they grow in the mouth, produce acids in the same way as they do when grown in the test tube in culture media containing the same kind or similar carbohydrates. Such acids, when in sufficient concentration or strength, decalcify the tooth structure at that point. The enamel is very resistant and breaks down very slowly. After the lesion finally extends through the enamel, the underlying dentin yields rapidly. Once a cavity, however small, is produced, it affords a more favorable place for food to lodge and be retained and decompose, thus keeping up and accelerating the production of acids and further damage to the tooth. The decalcification and breaking down of the tooth structure now progresses more rapidly until the pulp is reached, infection rapidly progresses down the canal and the tooth is devitalized and finally lost in one way or another.

At this point I wish to call attention to a fundamental fact relative to the growth and production of acids by aciduric bacteria which must be recognized if one is to understand clearly the prevention of caries. When suitable culture media are inoculated with aciduric bacteria, the culture must be incubated for hours before sufficient growth and multiplication occurs to begin to produce appreciable acidity. Even milk inoculated with pure cultures of the different kinds of aciduric bacteria usually found in the flora of the mouth, begins to sour, only after a good many hours of incubation. Within twenty-four hours considerable acid has been produced. Readings on acid and gas production in such cultures in the laboratory are usually not taken until after a still longer period —sometimes several days. This means that all food (particles and solution) in which aciduric bacteria may grow and produce acids must be removed from the teeth and mouth at least as often as every twenty-four hours, to prevent caries. It should be done at night before retiring. Then there follows a period of several hours before more food is taken the next morning. From the first meal of the day until time to clean the teeth again at night before retiring, is usually only twelve to fifteen hours—not long enough for harmful acid decomposition to occur. Cleaning the teeth and mouth of all food every night before retiring is all that is necessary entirely to prevent caries. Nothing less can be expected to do it.

PERIODONTOCLASIA

Recently I have employed a different technical method from that heretofore generally used for that purpose, in studying periodontoclasia. The method consists essentially of examining under the dissecting microscope, recently extracted teeth. Usually they are stained with a 1 per cent aqueous solution of safranin or some other suitable stain. This stains and brings out the remaining peridental membrane which is still attached to the root of the tooth, and, in a most impressive way, the bacterial film on the crown of the tooth and especially where it is heaviest near and just beneath the former gingival margin.

With suitable delicate instruments one can remove small amounts of this material from selected spots and make preparations for examination under high magnification. In this way only, can one fully realize and appreciate the large amount and the character of this film which is composed mostly of countless millions of micro-organisms, usually of many different kinds.

The specimen can now be cleaned off by brushing it well with an ordinary toothbrush. This removes the bacterial film and other loosely attached material but does not remove the peridental membrane. Quite vigorous brushing does not disturb it.

Such a previously stained and cleaned-off specimen is most satisfactory for examination under the dissecting microscope. Any one genuinely interested in studying the pathologic process of this disease should see such specimens for himself to realize their suitability for the purpose, especially for studying the early stages of periodontoclasia.

Periodontoclasia is due entirely to the irritation and inflammation at and beneath the gingival margin, caused by the mass of food particles, debris and principally bacteria, on the tooth. It begins between the teeth in most instances, where there is greater tendency for such material to accumulate and be retained. As the disease progresses and the tissues recede the space becomes larger and more favorable for accumulation and retention of the irritating material—and in larger quantity.

As the process progresses the lesions extend deeper and deeper until much of the tissues supporting the tooth have been destroyed, usually accompanied by suppuration (pyorrhea). But this is the far-advanced stage of the disease, and is relatively of little importance so far as prevention of the loss of teeth is concerned; for most of such teeth are finally lost, even if such treatment as is now available is applied.

The irritating material which causes periodontoclasia is constantly accumulating and being replaced. That present at any given time includes some food particles, debris and bacteria that have lodged and have been retained there for several days.

All that is necessary to prevent this disease and to stop its further progress (except perhaps for the most advanced lesions) is to remove this material sufficiently frequently. For this purpose, as in caries, cleaning of the teeth must be done at night before retiring. There follows a considerable period of freedom from the irritation by foreign material and rapid restoration of the tissues to normal occurs.

CLEANING THE TEETH

For practical purposes we may think of a tooth as presenting five different sides or surfaces for cleaning, viz: the grinding surface, the lingual surface, the buccal surface and two proximal surfaces between the teeth. One can quickly and easily clean the first three well by brushing with the ordinary toothbrush. He cannot clean the other two surfaces by any kind or amount or brushing. They can be cleaned only by the proper use of dental floss. A piece of this material must be passed between the teeth and then drawn diagonally against the sides of each of them.

With practice and patience one soon learns to clean all of his teeth in this way. The brushing and the cleaning with dental floss should be followed by vigorous rinsing and forcing water back and forth between the teeth. One soon realizes that in this way he is able to maintain a better condition of oral hygiene than ever before. There is no further development of caries or periodontoclasia.

SUMMARY

1. Practically all people sooner or later lose part or all of their teeth from caries or periodontoclasia or both.
2. Dental health-service and advice available at the present time are woefully inadequate to protect people in any walk of life from these diseases.
3. Both of these diseases and the resulting loss of teeth can be entirely prevented by cleaning the teeth with the toothbrush and dental floss every night before retiring.
4. They cannot be prevented in any other way.

ADVANCED PATHOLOGY OF THE ESOPHAGUS*

REPORT OF A CASE

J. E. KNIGHTON, JR., M. D.
SHREVEPORT

Esophageal pathology includes many types of conditions, varying from the simple irritation caused by harsh food or bone, to the malignant neoplasm. Many of the lesser lesions pass almost without notice by the patient as well as the physician. Of the more important conditions, most are readily recognizable by the presently available methods of study, and the benign disorders usually respond quite well to properly selected therapeutic measures. The case to be reported illustrates the progression of a simple condition into one which presented interesting problems of diagnosis and of therapeusis.

CASE REPORT

The patient, a white male, 58 years of age, was seen on January 17, 1940, through the courtesy of Dr. D. W. Kennedy. Aside from factors related to the present illness, there was nothing of importance in the past clinical history. The family history revealed that one sister had died of carcinoma. The patient was married, and the father of two, both of whom are normal, healthy adults. Employed in the oil industry the patient had always done outdoor work, but his position does not call for heavy physical labor.

The onset of the present complaint was dated back about fifteen years. It was stated that dysphagia was first noted, in that material which was swallowed seemed to pass into the stomach with difficulty. There was very little pain, if any, associated with the act of eating, but a definite sensation of discomfort was experienced. Later, regurgitation of food became a prominent feature, and this has followed each meal for many years. There has been no nausea, and vomiting has been spontaneous and not projectile in type. Most frequently regurgitation occurred immediately after eating, often before a meal was completed, but at other times it was delayed for several hours. It was not unusual for regurgitation to occur directly after eating, then be repeated after an interval of time. The patient did not recall that food eaten on the previous day had ever been noted in the material which was vomited. There was no particular odor or marked sourness noted in the material. Liquids, even water, prompted regurgitation as readily as did solid foods.

Despite the loss of much food there had been no great diminution in weight, but physical strength was definitely below normal. The appetite was unimpaired, and there were no other complaints referable to the digestive tract. The nervous system had become unstable, and in an effort to control this condition tobacco and alcohol had been used excessively for several years.

General physical examination revealed a paucity of positive findings. The patient appeared somewhat undernourished, quite nervous and anxious. The skin and mucous surfaces presented moderate pallor. Arcus senilis was present, as was fairly marked sclerosis of the peripheral vessels. Artificial teeth were present, the pharynx normal, and no abnormalities noted about the neck. The chest was full, with a fair degree of expansion, but the percussion note and breath sounds suggested the presence of emphysema. No other abnormalities were noted. The heart presented no enlargement, irregularity, or murmur, but the rate was accelerated to 100 per minute.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

The blood pressure was within normal limits. Examination of the abdomen revealed no palpable organs or masses, and there was no tenderness or rigidity. The prostatic and rectal examinations were negative except for the presence of a rigid anal sphincter. The extremities were normal.

The laboratory reported normal findings for urinalysis, white and differential counts, and only a very slight secondary anemia. Blood Wassermann and Kline tests were negative.

The findings justified a controversial diagnosis of esophageal diverticulum versus cardiospasm, and the patient was referred for radiographic study. This procedure, carried out by Dr. O. O. Jones, revealed findings which were quite difficult to explain. In its upper portion, at the level of the manubrium sternii, the esophagus was seen to be sharply angulated to the right. Below this it opened into a large pouch which extended downward, through the diaphragm into the upper left quadrant of the abdomen, where it emptied into the stomach. The junction with the stomach was at a point well below the diaphragm and midway between the spine and the lateral wall. At its lower end the pouch was sharply cut off, being released at intervals to allow the passage of the barium meal. There were markings simulating gastric rugae in the pouch, and there appeared to be peristaltic waves in its wall, but these could not be followed throughout the length of the structure. The constriction at the lower end presented identically the appearance of a pylorus, below which the barium was seen to spread out into an area resembling a cap. From this point the opaque material dropped into the fundus of an entirely normal stomach, and the remaining portions of the gastrointestinal tract were found to be devoid of any abnormality. There was a small six hour retention in the thoracic pouch.

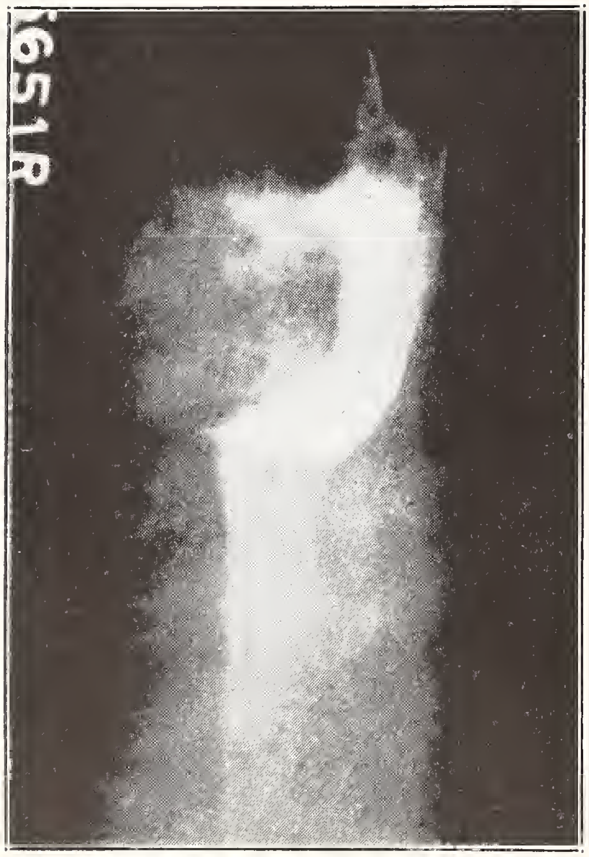


Fig. 1. Showing kink in upper esophagus at level of manubrium sternii.

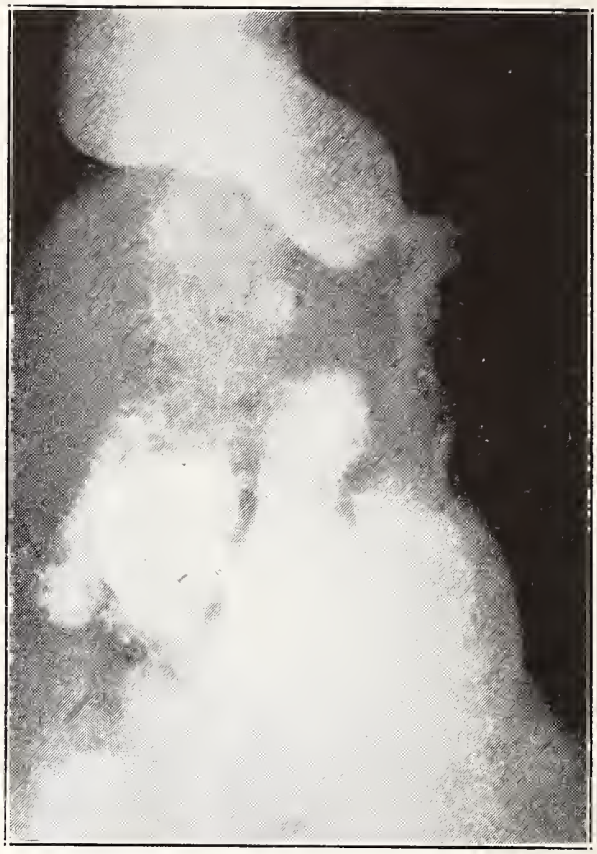


Fig. 2. Showing extensive dilatation of esophagus. Note suggestion of peristaltic waves, and appearance at lower end simulating a pylorus and cap. Normal stomach below.

This examination suggested the startling possibility that the patient might have an accessory stomach. Certainly the outline and general contour of the structure resembled that of a stomach with the lower end directed to the left instead of to the right. The constriction at the lower end with the clear cut separation of the barium, and its periodic release to allow passage of barium was indicative of the presence of a muscular sphincter such as the pylorus. Then with the suggestion of a cap, the presence of peristaltic waves and rugal patterns it would seem certain that such a condition was present. Furthermore the findings coincided well with textbook descriptions in that one "stomach" was partially in the thorax, one was smaller than the other, and there was obviously an abnormal opening in the diaphragm which might be considered a diaphragmatic hernia. Yet the rarity of multiple stomach would not let me accept what seemed obvious. The literature contains reports of many types of anomalies of the stomach, and of intrathoracic cysts containing gastric mucosa, but I have found only one report of double stomach.[1]

It was not until this stage of the examination had been reached that, upon closer questioning regarding past history, it was learned the patient had at one time consulted Dr. Knighton, Sr. This record, under date of June 19, 1912, listed dysphagia as the chief symptom. This complaint had been noted for several months, but there had been no regurgitation. General examination was negative, a diagnosis of cardiospasm was made and anti-spasmodics were prescribed. A large bougie was passed without difficulty. In September, 1913, the patient returned, stating that he had been having the same trouble and that at times nothing could be swallowed. Again examination was negative, and an Ewald test meal was given. After one hour a stomach tube was introduced, but only bloody mucus was obtained. The note on the record expressed doubt that the tube entered the stomach. Radiography of the stomach was then undertaken, and the note reads as follows, "Bismuth meal given and x-ray picture made immediately afterwards. The bismuth had passed promptly into the stomach showing that organ to be normal in size, shape, and location. No bismuth shown in esophagus." He was not seen again, nor did he report by mail.

These findings on the record in 1912-13 were strongly against a diagnosis of accessory stomach, for, of course, this would have been a congenital structure. Even without the benefit of fluoroscopy, and recognizing the inadequacy of radiographic equipment of that time, this report seemed acceptable.

It was felt that chemical studies might definitely answer the question, and the patient was hospitalized. On the first morning after lavage of the upper pouch, using an Einhorn tube, an alcohol test meal was introduced.

Fractional examination gave the following results:

Time minutes	Free HCl	Total acidity
15	0	10
30	0	15
60	0	27
75	0	25

On a second morning the fasting state showed secretions in the upper pouch, the quantity of which measured 120 c. c. This material was clear and had a high content of mucus. Titration revealed no free hydrochloric acid, but total acidity was measured at 25°, and lactic acid was present. After ether extraction of lactic acid the total acidity was reduced from 25 to 18 degrees. Following this aspiration an Ewald test meal was given, and withdrawn after one hour. Titration revealed total acid of 6°, and no free hydrochloric acid. Lactic acid was present, but in less amount than in the fasting specimen.

On another morning tubes were introduced into the upper pouch and the stomach proper simultaneously, and their positions verified by x-ray. Aspiration was done to empty the structures, after which histamine acid phosphate (50 mg.) was given parenterally. Fractional withdrawal of the secretions revealed the following titration figures.

UPPER POUCH

Time minutes	Free HCl	Total acidity
15	0	3.0
30	0	7.0
45	0	6.4
60	0	8.0
80	0	6.0

STOMACH

Time minutes	Free HCl	Total acidity
15	45.5	57.9
30	95	125.0
45	56	66.0
60	35	48.0
80	46	70.0

It was further noted that the secretions from the upper pouch exerted no digestive action upon egg albumin, while digestion by the gastric secretions was normal.

These examinations indicate quite clearly that the lining of the upper pouch does not contain cells such as are found in gastric mucosa. The acidity present in the upper pouch is evidently due to organic acids as a result of stagnation and fermentation, for the acidity of the fasting residual was always higher than in the samples after lavage and the introduction of secretory stimulants.

DISCUSSION OF FINDINGS

Being convinced that the condition was one of cardiospasm of long standing with secondary, though massive, dilatation of the esophagus, the foremost problem became that of therapy. Because of the dilatation and, presumably, thinning of the esophageal wall, it was thought best to withhold tubes and bougies with the attendant danger of perforation. Esophagoscopy was likewise not requested. The patient was kept at rest with simple sedatives and a bland diet, and reported definite improvement in his feelings. Regurgitation, however, continued daily. After two weeks the patient lost his optimism and his physician, too, was near the point of recommending surgery. The operation under consideration was gastrostomy, with retrograde dilatation of the cardia. A careful attempt at bouginage was decided upon before resorting to surgery, and the Hurst mercury-filled bougies selected. Using the size 36 French, and under fluoroscopic control it was found that by having the patient lean to the right the bougie passed the angulated esophagus in the region of the manubrium, without difficulty. Then by having him lean to the left as the bougie progressed it avoided the dependent part above the right diaphragm, and by its weight continued toward the cardia. At this point there was a delay of about a minute after which time the bougie accomplished the dilatation and passed into the stomach. On the following morning the same bougie was introduced with less delay at the cardia, and was followed by the size 40 French. On successive days the 46 French and 52 French bougies were employed, and the larger of these was continued daily for several days, then with intervals of three to five days. It was found that if used regularly this bougie could be passed without difficulty, but after an interval of a few days there would be an appreciable delay at the cardia. It was obvious that more complete divulsion of the cardia was necessary. The old hydrostatic dilator was definitely contraindicated in this case because of its rigidity, but the pneumatic dilator designed by Drs. Browne and McHardy was found to be ideal. Because of its flexibility and its mercury weighted construction this instrument could be guided by posture in its descent, and directed to the proper point. Dilatation was carried out at weekly intervals using a pressure of twelve to fifteen pounds, and three successive treatments were given.

Results of treatment have been quite gratifying. Since the third introduction of the Hurst bougies there has been no regurgitation of food, and since the use of the pneumatic dilator even the feeling of tightness and of hindrance to the passage of food has disappeared. Nearly a month has passed without any instrumentation, and the patient states that he does not remember when he felt so well. In addition to the dilatations, treatment has included a preparation of ferrous sulphate and thiamin chloride, and a non-irritating, but sufficient, diet. Despite the fact that there had been no great loss of weight the patient has gained 25 pounds since the institution of treatment.

Fluoroscopic observation of the upper alimentary tract was repeated on April 15, 1940, and changes were observed which were truly unexpected. The angulation in the upper esophagus had disappeared, allowing straight descent of the barium. The esophagus just above the diaphragm was about half as large in diameter as it had been previously, and the portion below the diaphragm appeared almost normal in size. Of greatest importance, there was very little stagnation of the barium above the cardia, and in less than five minutes the esophagus was almost empty.

CONCLUSION

The future for the patient, whose case history has been recorded, is quite bright, and he is most grateful for relief which might have been afforded years ago had he not failed to return for treatment.

REFERENCE

1. Cashion, W. A.: Supernumerary stomach with duodenal bulb associated with diaphragmatic hernia, Med. Bull. Veterans' Adm., July, 1934.

DISCUSSION

Dr. Daniel N. Silverman (New Orleans): I think Dr. Knighton has presented a clinical case which is certainly a complete study of this individual with esophageal disease. He had expert opportunity of studying the case through his father's record 28 years before, as he mentioned. The only case I have seen so greatly dilated, containing so much material, was a patient of the late Dr. Frank Smithies, in his clinic, in 1924, where the esophagus contained about 2000 c. c. and they had a label around this man's identification card, "In case of my death, my body belongs to Dr. Frank Smithies."

Esophageal disease, including cardiospasm, is not frequently enough recognized, and very often due to our own fault. It is unpardonable when an individual who complains of gastric distress and indigestion, is sent to the radiologist for a G. I. series, and we do not ask for an esophageal study. What I mean is that we should ask that the esophagus be examined in detail, with substances that are heavier than barium mixture, the esophagus will be outlined and lesions can be detected in the esophagus not commonly observed in the ordinary G. I. series.

More lesions of the esophagus of a serious nature, such as malignancy, are seen today in younger individuals than ever before; carcinoma of the esophagus in individuals not thirty years old is not rare.

Esophageal disease may give referred symptoms to the stomach, or even to the lower abdomen; rarely, however, but not infrequently to the epigastrium. Just recently, epigastric distress was found to be caused by a diverticulum of the esophagus, as far up as the hyoid level. It is never truly diagnostic to say an individual has a particular disease of the esophagus unless that individual has been esophagoscoped. A mere spasm under the fluoroscope might under the esophagoscope be revealed as a reflex symptom or sign of a lesion in that esophagus, such as a peptic ulcer, which, although not common, is seen from time to time in the lower esophagus. On the other hand, a filling defect, such as an ulcer, may be seen in the esophagus under esophageal examination, and removal of a section may reveal that an apparently benign ulcer is a carcinoma of the esophagus. When we have a case of cardiospasm, the esophagus must be dilated forcefully, and it is best to use a pneumatic dilator, in order to cure the patient of the cardiospasm.

The one important point is that we should look more carefully for esophageal disease in more cases of gastrointestinal disturbances.

Dr. Philip J. Bayon (New Orleans): I think it is very unkind to tell someone who has caught a large fish that you have seen one just as large. I had occasion recently to see a dilated esophagus about as large as that of Dr. Knighton's patient—it was a little larger. The patient had most of the symptoms that were present in this case. She had been to a large clinic in Philadelphia where she received the usual dilatations of the esophagus and had also been tried on the Hurst mercury-filled bougie. She would experience a little relief for a few days, then revert to her original condition. We aspirated 1500 c. c. of turbid fluid from the dilated esophagus, examined the esophagus esophagoscopically, and dilated the esophagus with bougies, following which, the Hurst bougie was used. Since she did not improve, Dr. Ochsner was asked to see her and he performed an esophagogastrostomy. This was six months ago. About six weeks ago, she was seen again and examined esophagoscopically, and has had so far satisfactory results.

She did not receive thiamin chloride. I was very happy to hear Dr. Knighton mention that his patient had received thiamin chloride. In a series of six patients whom I have under observation, I have used thiamin chloride in two. Those two did not respond to the usual methods of dilatation. They did respond after using thiamin chloride, and I should like to ask Dr. Knighton if he has other cases with cardiospasm in which he has used thiamin chloride routinely, and with what result?

I think it is unfortunate that the esophagoscope was not passed into the esophagus, because it might have been interesting to determine whether the folds which have been shown roentgenographically might not have been folds of a dilated esophageal pouch. The color of the mucosa might have been of some value in determining whether it was stomach or esophagus. Generally, the color of the esophagus is in marked contrast to the color of the stomach.

Dr. W. A. Dial (Baton Rouge): I would like to ask Dr. Knighton if he tried sympathetic block on the patient.

Dr. J. E. Knighton (In conclusion): In answer to Dr. Dial's question, we did not use any, not even minor surgery, in this case.

Regarding Dr. Bayon's fish story, the one with the smaller fish can always say his dried out before being weighed. We never did fill up this pouch; he would take three glasses of barium mixture, and we thought that enough. This case was the largest I have ever seen.

Regarding the thiamin chloride, I do not recall that I have given it to any other patient with cardiospasm, but I think along the lines Dr. Bayon suggests, I will. It deserves thorough trial and I know it helped this individual.

I appreciate Dr. Silverman's comments. He is entirely right in saying that esophagoscopy should have been done. We recognize the fact that it probably would have answered the question, by direct observation of the mucous membrane, as to whether it was gastric or esophageal, but we were afraid to introduce anything with any degree of rigidity as we could not help but feel that this pouch was quite thin. From his recovery, it must have had more residual strength than we anticipated.

This man could have had a peptic ulcer in the lower esophagus many years ago. It may be my optimism, but I do not think he has now. Certainly, with the tenacity that this condition exerted over this long period of years, it would suggest something unusual as a cause, unless we accept the usual concept that it is a neurogenic condition.

This case emphasizes another thing to me also, the importance of the clinical history and record. I was very glad to find that old record made by my father for this particular individual.

IMMUNIZATION AGAINST DISEASE IN INFANTS AND CHILDREN*

H. AUBREY WHITE, M. D.
ALEXANDRIA

It has been said that he who cures diseases may be the most skillful, but he who prevents disease is the safest physician. It is known that some diseases of infants and children may now be prevented by immunization, and every physician must know what diseases can be prevented and at what time of life the immunizations must be given. In this paper I will outline some of the procedures, what preparations to use and at what age they should be administered.

It is well to note that the age of a child exerts a controlling influence on susceptibility to some diseases, and susceptibility is a necessary factor when considering the administration of an immunizing agent. It is generally known that infants are susceptible to whooping cough, chickenpox, and smallpox from birth, and that they are not susceptible to or possess some immunity against diphtheria, scarlet fever, and measles, probably up to six months and possibly throughout the first year of life.

It is for these reasons that early immunization against whooping cough and smallpox is desirable and that immunization against diphtheria may be postponed until the latter part of the first year.

WHOOPING COUGH

It is more likely that an infant will be exposed to whooping cough than smallpox, so my first immunization procedure is against whooping cough which is done at five or six months of age.

There is no test for immunity against whooping cough. Until other means of proving immunity against whooping cough have been perfected, exposure remains the ultimate test. There are two preparations used for active immunization against whooping cough: Sauer's vaccine and Kruger's endo-antigen, or Kruger's undenatured bacterial antigen.

In a controlled study of pertussis prophylaxis, Singer-Brooks, found that in 95 children injected with an undenatured bacterial antigen, 34 were exposed and 28, or 29.4 per cent of the 95, developed whooping cough. In a second group of 272 children injected with phase 1 *Haemophilus pertussis* vaccine, or Sauer's vaccine, 42 were exposed and only seven, or 2.5 per cent of the 272, developed whooping cough. Along with these series, 256 children were used as controls of which 71 were exposed and 62, or 24.2 per cent, developed pertussis. From this study actually more children developed whooping cough who had the undenatured bacterial antigen than those of the control group; however, Singer-Brooks admits that these series should have further observation and study. It is evident that, of the two immunizing agents, Sauer's vaccine offers the better results.

There are two strengths of Sauer's vaccine, single and double. The single strength contains 10,000 million killed pertussis bacilli per c. c., and the double strength contains 20,000 million killed pertussis bacilli per c. c. Both are prepared from several recently isolated strains of pertussis bacilli tested for phase I characteristic. If the single strength is used, the following procedure is followed: One c. c., or 10,000 million pertussis bacilli, is given in the upper deltoid region of both arms, two injections at one time. One week later 1.5 c. c. is given in the biceps region of both arms, and still another week later, 1.5 c. c. is given in the triceps region of both arms. Thus in three weeks six doses, containing 80,000 million pertussis bacilli, are given.

For children over two years of age an increased amount of vaccine must be given. The dose in these cases is 1 c. c. in each arm at the first dose; 2 c. c. in each arm for the second and third doses, giving a total of 100,000 million bacilli.

If the double strength Sauer's vaccine is used, the procedure is as follows: A single injection at weekly intervals is given, using first 1 c. c., or 20,000 million pertussis bacilli, in the deltoid region of the left arm, second injection of 2 c. c. in the deltoid region of the right arm, and the third injection, one week later, of 2 c. c. in the triceps region of the left arm. Thus, in three weeks, 100,000 million pertussis bacilli have been given. For immunizing children over two years of age with the double strength Sauer's vaccine, single doses of 2 c. c. at intervals of one to two weeks are administered, giving a total of 120,000 million bacilli.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

The local and systemic reactions are usually quite mild. Parents should be told that there may be a transient rise in temperature with malaise, but this should not be of any consequence. The local reaction, such as tenderness, redness and induration, are practically never severe enough to postpone subsequent injections. A movable subcutaneous nodule may persist for a few weeks. Infections of the skin are most rare. Sauer believes that sufficient immunity is not obtained until four months after the vaccine is given. In spite of the pros and cons as to pertussis immunization, it is far easier to prevent whooping cough than it is to influence its course after actual exposure has already occurred.

DIPHTHERIA

The specific test of susceptibility to diphtheria is the Schick test. The test is done by injecting intradermally 0.1 c. c. diphtheria toxin diluted in normal saline, in the inner aspect of the forearm. The reaction is read in 48 to 72 hours. If the area of redness is 0.5 cm. or larger in diameter the test is positive and the child is susceptible to diphtheria. Pseudo reactions may occur but usually only in hypersensitive or allergic children, especially if they have been previously immunized.

A large proportion of children during the last half of the first year of age are susceptible to diphtheria and may be immunized without prior Schick test. Older children, specially those over four years of age are more prone to exhibit unpleasant reactions after immunizing injections; therefore only known susceptibles as determined by the Schick test should be immunized. The Schick test routinely should be made six months after active immunization to determine the establishment of immunity. Immunization should begin at nine months of age.

Several preparations are recommended for the active immunization against diphtheria. Of these for the infant, plain toxoid and alum precipitated toxoid, and for the older child a toxin-antitoxin mixture. These are of proved value. More recently a preparation containing both diphtheria and tetanus toxoid has been used with gratifying results. If the plain toxoid is used, two injections of 1 c.c. each are given with an intervening period of three weeks. If the alum precipitated toxoid is used, 1 c.c. is given with an interval of one month, while some have advocated an interval of two months between injections. If the combined tetanus and diphtheria toxoid is used, two injections of 1 c.c. each are given with an interval of three months. All three of these methods are accepted and are of proved value.

The results of active immunization against diphtheria with toxoid are so encouraging that it can be hoped that diphtheria may be one of the avoidable diseases. Active immunization is harmless. The toxoid must be absolutely reliable and sterile and the injection has to be performed with asepsis. For the child who is exposed to diphtheria and who has not been immunized, or who does not possess a negative Schick reaction, 1000 to 2000 units of diphtheria antitoxin should be gixen. This passive immunity lasts only two to three weeks. Thereafter a Schick test or, depending on the age, toxoid should be given, and at the proper time the patient should be Schick tested again. In cases of exposure to diphtheria, toxoid is of no value and should not be given.

There is possibly some danger in giving toxoid after exposure, because after toxoid injection there is probably a so-called "inactive phase" (Griffith-Mitchell) in which there is increased susceptibility to diphtheria and this should lead to caution in immunization during epidemics.

TETANUS

Until the past few years only a temporary active immunity against tetanus was available—that by giving, at the time of exposure by a wound, 1500 or more units of tetanus antitoxin. Now there is a tetanus toxoid for immunizing against tetanus, which is of proved value. Tetanus toxoid may be administered in three doses of 0.5, 1 c.c. and 1 c.c. at weekly intervals. This may be administered between the second and fifth year. Cook and others have advocated the use of a combined diphtheria and tetanus toxoid for the early immunization against tetanus. Jones and Moss noted the antitoxin potency of the blood following such a procedure was quite low, averaging .06 units per c. c. a year later. They advised therefore giving a second stimulating dose of tetanus toxoid which increased the antitoxin content of the blood 20 to 50 times which is higher and more persistent than that produced by a prophylactic injection of 1500 units of tetanus antitoxin. There is no practical test for immunity against tetanus.

Routine procedure in producing active immunization against tetanus and diphtheria consists of administering a preparation of combined alum precipitated diphtheria and tetanus toxoid at nine and 12 months, giving 1 c.c. at each injection. If the child later incurs a suspicious penetrating or lacerating wound, another dose of tetanus toxoid is given. This is a second stimulating dose of toxoid which produces a high and lasting antitoxin content of the blood. Tetanus toxoid may be repeated each time protection against tetanus is needed. This procedure eliminates the possibility of serum reaction seen at times after administering tetanus antitoxin.

SMALLPOX

There is no test for susceptibility to smallpox, although a reaction of immunity following vaccination is sufficient evidence of immunity if there is a history of a previous successful vaccination or "vaccinia" and objective evidence of an old vaccination scar.

In active immunization, calf vaccine smallpox virus is used by scarification, although others as chorio-allantoic chick embryo vaccine and lyophil tissue vaccine have been recommended; the latter is used intracutaneously. This is particularly useful when children with skin diseases require vaccination.

Vaccination can be done as early as three to six months, however I prefer waiting until after the first year, probably at fifteen months of age. As to the technic of the vaccination, the best method is multiple pressure or acupuncture. The skin (arm or leg) is cleansed with soap and water without much friction, then acetone or ether may be used, and allowed to dry thoroughly. A small drop of virus is placed on the skin and twenty or more punctures, or firm pressures, are made through the drop of virus, with a sterile needle held almost parallel to the skin. The punctures should be confined to an area of one-eighth inch in diameter and should not be deep enough to draw blood. The virus may be allowed to dry somewhat, but it may be wiped off immediately. No dressing is necessary; however, I usually cover the area with a dry dressing. About the third or fourth day after vaccination, one or more papules appear at the site of vaccination; enlarging, a vesicle forms and umbilication develops and then the seventh day it is surrounded by a red and swollen area which extends as the lesion advances, reaching the maximum about the ninth or tenth day. Then the vesicle dries and leaves a crust. This is an excellent protective covering and should not be removed. This type of reaction is recorded as "vaccinia." If there is no reaction or "take" this is due either to an impotent virus or faulty technic. The vaccination should be repeated with a new potent virus and with improved technic.

There are two other reactions to vaccinations which are seen in older children, which should be mentioned in this connection. If a child is vaccinated who has had an attack of smallpox or who has had a successful initial vaccination and has lost a considerable degree of immunity acquired thereby, there will result a "take" which is less severe than the primary vaccinia and much more rapid in progress, completing the vesiculation and crusting in from four to eight days. This type of reaction is "vaccinoid." The other reaction is seen in older children who have had an attack of smallpox or successful primary vaccinia in which there is a high degree of immunity. In this reaction the maximum degree of redness is reached in from 12 to 72 hours after vaccination, slight elevation of the skin and some itching, but there is no vesiculation. This type of reaction is an "immune reaction."

SUMMARY

The procedures as offered in this paper are those I use in the routine immunizations. The following is my schedule: At five or six months of age—Sauer's vaccine; from nine to 12 months—combined alum precipitated diphtheria and tetanus toxoid; at 15 months—Schick test; at 15 months—smallpox vaccination. This schedule fits in very nicely in the general care of the infant and has proved very satisfactory in my practice.

BIBLIOGRAPHY

Davison, W. C.: Compleat Pediatrician, Duke University Press, Durham, N. C., 2nd ed., 1938, p. 243.

Gengenbach, F. P.: Present status of contagious diseases of childhood; prevention and treatment, Rocky Mountain M. J., 36:315, 1939.

Greenebaum, J. V., and Selkirk, T. K.: Status of immunization procedures in infancy and childhood, J. Med., 19:618, 1939.

Griffith, J. P. C. and Mitchell, A. G.: Diseases of Infants and Children, W. B. Saunders Co., 2nd ed. 1937.

Hoyne, A. L.: The Pharmacopeia and the physician; immunologic methods in pediatrics, J. A. M. A., 112:1581, 1939.

Jones, F. G., and Moss, J. M.: Antitoxin titers of human subjects following immunization with combined diphtheria and tetanus toxoids, alum precipitated, J. Immunol., 33:173, 1937.

Jones, F. G., and Moss, J. M.: Combined diphtheria toxoid and tetanus toxoid, alum precipitated; prolongation of accelerated immunity following stimulating dose of antigen, J. Lab. & Clin. Med., 24:512, 1939.

Report of Committee on Immunization Procedures of the American Academy of Pediatrics, January, 1938.

Singer-Brooks, C. H.: Controlled study of pertussis prophylaxis; comparison of phase I, *H. pertussis* vaccine with undenatured bacterial antigen, J. Pediat., 14:25, 1939.

Von Canon, O. L.: Present status of diphtheria and tetanus toxoids, Arch. Pediat., 56:409, 1939.

DISCUSSION

Dr. Julian Graubarth (New Orleans): Dr. White has given us an excellent plan for the immunization procedures in childhood, and I am sure, due to the short time, was not able to include a lot of the points he might have emphasized.

One point I would like to emphasize is the importance of the Schick test. The Schick test should be done, of course, as a follow-up to the diphtheria immunization, and should be repeated every year until the child has gone to school for several years, for the reason that many children lose their immunity even though they have had a negative Schick test. They used to teach that a negative Schick test always meant a permanent immunity but we now know that that is incorrect. Another point that might be mentioned here is that it has been suggested by some workers it is better to give a stimulating dose of diphtheria toxoid each year rather than to repeat the Schick test. However, this has not been universally accepted.

A word about the vaccination against smallpox: Dr. White mentioned that it is very advantageous to vaccinate before six months of age and I would like to emphasize that the scratch reflex has not appeared and of course that is very important, as the older child might start to scratch and as a result a secondary infection may follow. If vaccination is done before any of the immunization procedures there is a heterophile reaction in the blood and that produces a higher degree of antibodies production for the later immunization procedures.

Dr. White mentioned that there is no test for immunity against smallpox. Among the reactions there is such a test, for if one vaccinates a person who is immune that person will react as an immune reaction. Oftentimes, one gets another reaction such as if one uses a virus that is rather weak or about ready to give up its potency, and such a reaction will fade out in a few days after the vaccination commences to take. This reaction is classified as a weak virus reaction and the vaccination must be repeated.

Now as to the length of immunity to smallpox vaccination; the law says that we should revaccinate every seven years. It has been shown by the work of Rosenow in Boston, in a careful study of a series of cases, that vaccination may last a lifetime and this was proved by the reaction of immunity. Of course during an epidemic of smallpox one should be revaccinated regardless of the history of a take and no doubt for safety it is advisable to revaccinate at least every five or seven years.

As to the technic of vaccination, several years ago, Friedman of Boston developed a scarifier which produces a very small scar and is especially useful in the struggling child.

Another immunization procedure is typhoid vaccination. Regardless of where we live, there is always a case or two of typhoid fever, and here in New Orleans we had quite an epidemic, rather we had more cases than we should have had, and routine immunization against typhoid should, therefore, be recommended. It is especially desirable for the children who are attending summer camps and making trips. The time to start the typhoid vaccination is at two years of age. I recommend that each year following the child receive one stimulating dose of typhoid vaccine.

Dr. James E. Bailey (New Orleans): I have felt for some time that probably the European method of vaccination against smallpox, before six months, is well worth consideration as a routine procedure in this country. Dr. Graubarth has called our attention to the fact that the scratch reflex has not developed and that removes one hazard. The systemic and local reaction is also less and the cases of post-vaccinal encephalitis occasionally encountered are found in the older group.

The question of whooping cough immunization is one that should be brought to the attention of the general public a great deal more than it has been. Time was a few years ago when we had to suggest, and even urge, that parents bring their children in for diphtheria immunization but today they come in with the child asking for immunization. In the City of New Orleans, through the intensified efforts of certain agencies and the work of private physicians, we have been able to reduce the mortality on diphtheria to less than 50 per cent of what it was only five years ago. It has been my custom to immunize against whooping cough at the earlier age, as has been Dr. White's practice. That would seem to be indicated from the fact that in 1937, throughout the United States, the mortality in whooping cough was 15 per cent greater then the combined mortality from diphtheria and scarlet fever, not to mention tuberculosis, and asthma, that follow in the wake of whooping cough. I use the earlier age for immunization against whooping cough always, except in one instance, and that is where the child under one year is going out to a rural section where medical facilities are not easily available and where there is no opportunity for rapid bacteriologic investigation. In diphtheria the one dose, I believe, is insufficient. It is better to give two, or even three doses, depending on the age of the child.

The burden of responsibility for immunization will ultimately fall upon the physician. Your chief responsibility is to sell the idea to the parents and that is especially true of whooping cough immunization. If you do not, they will string along, procrastinate until something happens and then will say, "Why didn't you tell us?" I have made it a rule to place on the diet list the question: "Has your child been immunized against smallpox, diphtheria and whooping cough?" Suggest to them in some way the necessity for immunization.

We should impress upon the parents that one dose, or even two doses of diphtheria toxoid, is not going to confer immunity in 100 per cent of the cases, which so many seem to believe. They have the idea if the child gets one or two doses of toxoid that child can go on safely and will never be menaced by the scourge of diphtheria. Insist on the Schick test.

Dr. H. Aubrey White (In conclusion): I do not believe Sauer's vaccine is the answer to whooping cough immunization, but it is the best we have today. I think whooping cough is one of the most serious diseases of infants, and I believe it is far easier to prevent than to influence its course after it has once begun.

In writing this paper, I was interested in the subject of tetanus. I was talking to a friend of mine the other day and told him I was going to bring in immunization against tetanus, and he said, "Getting right down to facts, say a child will stick a nail in his foot, would you feel safe to give a second stimulating dose of tetanus toxoid or give tetanus antitoxin?" I said that I would give a second stimulating dose. I looked up the figures and the maximum protection 3000 units of tetanus antitoxin will give is 0.1 to 0.25 units of the antitoxin contents of the blood. A second stimulating dose, after having given the first stimulating dose in infancy, will give a higher antitoxin content, so it is certain that it is of great value and will prevent tetanus at that time. As an admission of its value, the French army was begun to be immunized regularly by this method in 1936 and good results are obtained from first a stimulating dose of toxoid and at the time of injury a second stimulating dose, which gives a very high antitoxin content of blood.

RHEUMATIC INFECTION IN CHILDREN IN THE DEEP SOUTH*

JAMES EDWIN BAILEY, M. D.†
NEW ORLEANS

Rheumatic infection in children in the deep South does not bring the perennial havoc commonly seen in other sections of the United States. This is true because it is not as widely prevalent in this section and for the additional reason that the course and termination is entirely different from the form encountered elsewhere. Notwithstanding the relative infrequency of juvenile rheumatic infection in this particular area, this discussion seems justified because of its apparent increase, totally different manifestations and prolonged course. Another reason for this comment is found in that group of children showing definite signs of early or subacute rheumatic disease. This group is made up of children who are underweight, poorly nourished, easily fatigued, who run an intermittent low-grade temperature and complain of vague, indefinite, transitory pains in the upper and lower extremities, frequently referred to by the laity as "growing pains." This group deserves consideration because it furnishes the great majority of acute rheumatics.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the Department of Pediatrics, Graduate School of Medicine, Louisiana State University Medical Center.

ETIOLOGY

In discussing the frequency of rheumatic fever in the South, Kaufman[1] suggests that its supposed extreme rarity may be due in part to failure to recognize the disease in these localities and Nichol[2] states that rheumatic heart disease was one-tenth as common in southern Florida as it was in Boston over the same period. Pounders and Gray,[3] in discussing the factors that play a part in the incidence of rheumatic infection, mention dampness and chilling. They suggest that natural gas used in cooking and heating, being a hydrogen gas, produces a great deal of moisture in the process of combustion and call attention to a situation which we have all observed in and around New Orleans when they point out that "in small homes where open gas stoves are used with poor ventilation it is not uncommon to see the furniture, walls and ceiling literally dripping wet in cold weather. So after all," they conclude, "we have here, artificially produced, the very kind of environment that strongly predisposes to the condition."

The etiology of rheumatic infection has been investigated and discussed for many years but the cause is still unknown. It is generally accepted that streptococci of the hemolytic variety, play a prominent part. Schlesinger[4] suggests that since "years of careful bacteriological research have failed to reveal a constant bacterium in the tissues gives some encouragement to the idea that a virus might be the possible agent, probably acting in conjunction with a streptococcal infection." Others have suggested that the infection is an allergic phenomenon.

As clinicians, our conception of rheumatic infection has changed widely over the years. No longer is it considered primarily a disease of the joints with involvement elsewhere in the body as complications; a concept which gave rise to the name "polyarthritis" in many European countries. It is now recognized as a systemic infectious disease involving not only the joints but the heart, nervous system and subcutaneous tissue as well. Shapiro[5] states, "the rheumatic infection is characteristically variable in its manifestations." Since this is true in a general consideration of rheumatic infection in children this variation is even more marked when the disease is considered in its geographic distribution. Indeed, the symptoms, diagnosis and end results of rheumatic infection differ so widely between the type common to the North and East and the type common to the deep South, that two separate diseases would be suggested if it were not for unmistakable characteristics, differing only in severity, common to both. In any consideration of the rheumatic state as found in the deep South it must be kept in mind that the classical symptoms, namely, the rheumatic nodule, considered by many almost pathognomonic, the skin rash, erythema marginatum, and chorea, common to the Northern and Eastern type, are mostly lacking. In the deep South we must depend on the polyarthritis, prolonged fever and cardiac involvement to reach a diagnosis. Since the etiology of the disease is not known there is no known diagnostic laboratory test for rheumatic infection; the clinical picture must be depended upon. It is quite easily understood that the diagnosis must be approached with caution. For the present, the syndrome must be regarded as indicative of the rheumatic state until definite proof is found to the contrary.

ACUTE AND SUBACUTE TYPES

In this presentation it is my purpose to discuss rheumatic infection as found in two groups of patients. First, in those showing early signs or subacute rheumatic infection; second, those manifesting acute symptoms.

During the past several years I have tabulated 42 cases of early rheumatic infection and 20 cases of acute rheumatic infection. While these groups are not sufficiently large to present as a formal statistical study, they will serve as a basis for this discussion.

In the first group the following complaints were presented:

1. Pains in the upper and lower extremities and stiffness.
2. Intermittent, low-grade temperature.
3. Poor appetite and failure to gain.
4. Nervousness and fatigue.

CLINICAL SIGNS AND SYMPTOMS IN SUBACUTE RHEUMATIC INFECTION

I. No subject was admitted to this group who did not complain of pains in the extremities. These pains were variable in intensity and more or less transitory. They were more constant and pronounced during periods of prolonged rain and temperature below the average. Pains were noted in the upper as well as lower extremities and were more marked when first arising in the morning. Orthopedic conditions were ruled out.

2. All of these patients ran low-grade, intermittent temperature ranging from 99.5° to 100.5°, with periods of complete remission. Tuberculin tests were made along with examinations for the malaria parasites and agglutination for the typhoid group and the usual tests for brucellosis.

3. In approximately 45 per cent of this group a systolic murmur was heard over the apex. The apex beat was exaggerated and the pulse rate slightly increased.

4. Mild choreic manifestations were observed in three patients, with marked symptoms in one case.

5. Hypertrophied and infected tonsils were found in approximately 75 per cent.

In the group presenting symptoms of acute infection the ages ran from six to nine years.

Approximately 75 per cent of these patients were seen during the winter and spring months, coincident with the highest incidence of upper respiratory infection.

CLINICAL SIGNS AND SYMPTOMS IN ACUTE RHEUMATIC INFECTION

1. Pains in joints of upper and lower extremities were found in each case. These pains varied in severity in different patients and varied markedly from day to day in the same patient. As in the first group, pains were more pronounced during periods of prolonged rain and low temperature. These pains were migratory. The joints were painful upon touch or motion. There was slight swelling; no redness was noted. In 40 per cent of this series pain and tenderness were noted in the neck, back and abdomen. The intercostal muscles were involved at times.

2. Fever ushered in the attack in each case with a daily elevation of 102° to 103° lasting two or three weeks. After the initial elevation, the temperature fluctuated between normal and 100.5° for periods of three to eight months. Three of this group showed an occasional elevation to 100.5°, one year following the initial attack.

3. Six of this group, or 30 per cent, had a definite mitral murmur, systolic in time, which did not improve; two cases were marked. No evidence of aortic regurgitation was found. There was no electrocardiographic evidence of cardiac damage.

4. The pulse rate was elevated in all of this group, remaining well over 100 for weeks, and in many instances, even months, before dropping to normal. These readings were taken at different times during the day, under varying conditions in order to rule out any extracardiac influences. The pulse rate was also observed with the patient asleep.

DIFFERENTIAL DIAGNOSIS

Among the main points in differential diagnosis in the subacute group is the evaluation of joint pain. Abt[6] declares "It is difficult to conceive the nature and pathologic process involved in a condition referred to as growing pains. The burden of proof for the diagnosis of growing pains rests on those who conceive its possibility. The fact that the pains occur in growing children does not of itself imply that the pains are due to the growth process. Perhaps in some cases pains are due to muscle fatigue, exercise or other non-rheumatic conditions not fully understood."

Joint pain associated with a rheumatic background will show some degree of tenderness on pressure and discomfort on motion. There is usually found tachycardia. There is also found a low-grade intermittent fever. Pain is complained of in the morning instead of at night. Pain involves both upper and lower extremities.

In the acute group brucellosis must be excluded. The intermittent type of brucellosis is characterized by weakness, pain in the joints, muscles, back, head and abdominal regions, nose bleed, chilliness and rigors. The fever is often high, fluctuating widely. The duration is from three weeks to eighteen months.[7] The undulating type shows periods in which there is no elevation of temperature and no clinical symptoms. As will be seen from the clinical signs of brucellosis, laboratory tests are necessary to clarify the picture. Three tests are essential; the agglutination and skin tests and the opsonocytophagic reaction. Calder states, "the present analysis indicates that if any two of these tests are positive the chances are about seventy to one that the clinical symptoms will be found compatible with a diagnosis of brucellosis."

SUMMARY

Rheumatic infection in children in the deep South is relatively infrequent but an apparent increase is suggested. The classical signs and symptoms are usually lacking in the Southern type and the end results much less disastrous. Subacute and acute forms are recognized. Joint pains, prolonged fever and mild cardiac involvement make up the clinical picture. For the present the syndrome must be regarded as indicative of the rheumatic state until definite proof is found to the contrary.

REFERENCES

1. Kaufman, Jerome G.: Rheumatic heart disease in children, J. Med. Soc. New Jersey, 35:525, 1938.

2. Nichol, E. S.: Geographical distribution of rheumatic heart disease in U. S. A., J. Lab. & Clin. Med., 21:588, 1938.

3. Pounders, C. M., and Gray, J. K.: Juvenile rheumatism, South. M. J., 32:375, 1939.

4. Schlesinger, Bernard: Juvenile rheumatism, The Practitioner, 142:375, 1939.

5. Shapiro, M. J.: Diagnosis of rheumatic fever, J. Pediat., 14:400, 1939.

6. Abt, Isaac A., and Abt, Arthur F.: The 1939 Year Book of Pediatrics, p. 185.

7. Huddleson, I. Forest: Brucella Infections in Animals and Man. New York, Commonwealth Fund, 1934, p. 4.

8. Calder, Royall M.: Chronic brucellosis, South. M. J., 32:451, 1939.

DISCUSSION

Dr. Roy E. de la Houssaye (New Orleans): Dr. Bailey's paper has given us something that I do not believe very much has been written about in the past number of years. He mentioned that rheumatic infection was considered a rarity in the South. I am in hearty accord with this. When I was in Boston and New York many years ago, I saw quite a number of cases of rheumatic fever. However, I have seen so few here in New Orleans and vicinity that I can think of only one or two patients at the present time. We see lots of heart infection that takes place following grippe and influenza. These infants and children later have a heart murmur, but no other symptoms associated with rheumatic fever as we know it.

Dr. Bailey mentioned streptococcus as a probable etiology of rheumatic fever. We feel that scarlet fever in the South does not compare in severity with scarlet fever of the North and East. I have found it very difficult to make a diagnosis of rheumatic fever. The rheumatic nodules that you read about in textbooks as classical pictures are rarely seen. I have had interns suspect and diagnose a case as rheumatic fever show me what they considered typical rheumatic nodules and have been able to demonstrate the same thing on other patients with no evidence of heart disease or rheumatic fever. Electrocardiograms in children have not been of very much value to me.

With reference to dampness and chilliness as a factor in rheumatic fever, there certainly should be lots here for I do not think there is a damper or chillier place. Houses sweat, children suffer with upper respiratory infections very frequently.

Dr. B. R. Heninger (New Orleans): My remarks are to be confined to the cardiac standpoint in reference to rheumatic fever. I did not get the exact percentage of heart involvement mentioned by the author, but I thought it was about 30 per cent, which I believe is much lower than my figures and those reported by others. I became interested in the treatment of rheumatic fever in 1936, at which time a preliminary report was made before the Southern Medical Association. I have accumulated some forty cases which have had the benefits of this treatment; these patients range from three to 40 years in age, most of them below 17 years. This group of patients is still under observation mainly by Dr. Russ, teaching Fellow in Pediatrics at Tulane. We have noted that as the patients get older, approaching adolescence, they have a greater chance of dying of a superimposed subacute bacterial endocarditis.

A late report of Stroud, in Philadelphia, in which 360 children have been observed with rheumatic fever for a period of fifteen years, indicated that the first three years after or following the initial attack of rheumatic infection is the danger period; in other words, these patients are more likely to have recurrences during this three year period than at any other time during their course of the disease. Stroud's report also showed that there were 17 per cent of patients who, later on, showed cardiac involvement although there was no manifested evidence of heart disease during the initial attack. The status of any rheumatic fever case is thus important and I feel that it is extremely important at the outset to determine if a given case of rheumatic fever is active or inactive. Certain criteria have been set down for this determination; such as, a rapid heart rate at rest, any joint involvement, temperature, leukocytosis, a rapid sedimentation rate and others. In a preliminary report before the Southern Medical Association, it was suggested that amidopyrine under the trade name of pyramidon, be used as the drug to convert an active state of rheumatic fever into an inactive state. Our observations clearly showed that this conversion was rapid, sometimes within three days all symptoms were relieved, accompanied by the temperature dropping to normal, the leukocytosis assuming the normal variation, the sedimentation rate becoming prolonged to the normal. With a small maintenance dose the case is continued in the state of inactivity. All these patients were treated in hospitals, white blood counts were made every other day in order to preclude the onset of agranulocytosis, only one patient to date showed a tendency to a leukopenia, and discontinuing of the drug resulted in the white cell count returning to a normal level within 48 hours.

It is urged that this method of treating any active case of rheumatic fever be tried. I am convinced that the danger of agranulocytosis is somewhat overestimated and such a danger cannot be compared to the ultimate danger resulting from the continued activity of rheumatic fever.

Dr. James E. Bailey (In conclusion): I realized when this subject was selected that it is a highly controversial subject, not only in the South where it is occasionally brought out, but especially in the North and East. I certainly do not mean to be dogmatic in any suggestions or statements made. The main thing to keep in mind is that we do not see rheumatic disease in all of its terrible devastating qualities so commonly seen in the North and East. Also that in the deep South it is essentially a low grade infection.

Dr. Heninger finds heart involvement in 60 per cent of his cases. Holt goes as high as 80 per cent and Poynton 70 per cent; my percentage was 30.

The fact is, in considering rheumatic fever if you read long enough and listen long enough you can read and hear almost anything. The main idea in offering this discussion was to point out the fact that we do see rheumatic disease in the deep South. I first began to make note of cases in 1929. Of 20 patients observed as having acute rheumatic infection, half or probably 12 were seen during the past two and a half years; seven are under observation at the present time. Most of these have been in the hospital and every avenue of investigation was used to rule out contributing factors.

In conclusion, may I appeal to you to be on the alert for this condition, because it deserves serious and careful consideration.

SOME FACTS ABOUT PREMATURE INFANTS*

CHARLES TARLETON WILLIAMS, M. D.
NEW ORLEANS

In managing the premature, it should be realized that we are dealing with a special type of infant, where slight mistakes may prove fatal. The premature infant must be doubly protected against infection, rapid change in body temperature and digestive disturbances that so frequently result from food. They should be kept under as strictly sterile conditions as possible, entirely isolated, except for the necessary attendant. Probably the electric type of incubator, with thermostatic control, is best adapted to general use. Inside temperature of the incubator should be kept at from 90 to 92° and this should be charted, along with the body temperature of the infant, every three or four hours. Stuffing the premature infant during the early days of life on strong solutions of high caloric value, probably kills more of them than any other single cause. Too much concern over failure to gain in weight during the early days of life is responsible for this error. Little, or no attention should be given to failure to gain in weight during the first ten days, provided the digestive function is not disturbed. It is much better to start them out on weak dilutions, with plenty of volume to keep up the body fluids. The type of formula that has given me best results is one high in protein, average in carbohydrate and low in fat. One of the most inadequate body functions at birth is digestion and this is due primarily to an insufficient secretion by the stomach, duodenum and pancreas. This defective function is greatly exaggerated in the premature infant.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 22, 1940.

PERSONAL OBSERVATIONS

My reason for presenting this subject was due to certain observations that were made by studying a group of children over a period of ten years, who were born prematurely. One hundred cases in private practice, where pediatric supervision was largely continued over this period of time, serve as the basis of this study. The physical and mental progress of most of the children of the group have been noted at the time of their visits to the office.

The case histories were taken from the files in alphabetical order and the salient facts that pertain to physical and mental development tabulated. Many of the older children were studied at their age levels, in order to determine if possible to what extent the premature child is actually handicapped. Variations from the expected standards for full term, normal infants, have been utilized in arriving at conclusions.

TABLE 1

Smallest infant of group, 2 lb. 4 oz.
Largest infant of group, 5 lb. 14 oz.
Average birth weight of group, 3 lb. 14 oz.
Average weight at six months, 13 lb. 11 oz.
Average weight of group at one year, 19 lb. 4 oz.
Average time of sitting up by group, 8 months.
Average time of pulling up by group, 11 months.
Average time of standing by group, 14 months.
Average time of walking by group, 19 months.
Average time of talking by group, 20 months.

There was prolongation in the usual time of recognizing lights, highly colored objects, toys and voices. There was also prolongation in reaction time to certain tests that are made to determine the mental status of infants at different ages.

Table 1 indicates definite retardation in both physical and mental progress during the first two years of life. After that time, however, if the premature infant did well from the start, the physical and mental levels were about up to normal standards and his future progress much less uncertain.

Three children were rejected from the averages of the group, due to frank mental deficiency. The intelligence quotient ranged from forty in the case of the lowest, to sixty in the case of the highest. It is interesting to note that the cause of prematurity in all three instances was toxemia of pregnancy.

COMMENT

It would seem for some good reason that certain premature infants are born to do well, while others are born to perish. We so often see, where apparently all things are equal, one that survives the same type of difficulty that proves fatal to another. Maybe this difference could be explained through difference in stamina of the somatic cells. At any rate, it plays an important role as to whether or not a given premature infant will successfully pass the stormy first three days of life and stem other likely intercurrent conditions.

Whether or not it is a coincidence that 3 per cent of this group showed mental deficiency could not be stated on the basis of other findings. Table 1 indicates that mental retardation was to a certain extent in excess over the physical retardation. This is probably explained in part by the greater lack of development of the central nervous system at the time of birth, but whether this would account for the whole story would be difficult to state.

Once the handicap of prematurity has been overcome, such a child is no more likely to become the "stunted" child of later years than is the normal full term infant. The children of this group, who did well from the beginning, have achieved excellent physical and mental standards. Among those who did poorly during infancy, are found the physical and mental defectives. Taking the upper stratum of this group, it is difficult to reconcile oneself to the fact that many of them spent the first two months of life in an incubator.

In every instance where mental deficiency was associated with prematurity, there has been a physical deficiency also. There was a large percentage of those who did poorly during infancy who showed immaturity at birth. Immature premature infants are a much more difficult subject, most of them usually meeting with disaster through some intercurrent condition. Those who survive usually do poorly.

Through study of these children, it was noted that mental retardation is much more difficult to evaluate and more likely to persist than are physical inaptitudes. While they are usually found conjointly, often the physical defects right themselves, but rarely ever the mental.

SUMMARY

1. One hundred premature children have been studied over a period of ten years and certain observations on physical and mental development noted.

2. Practically all premature infants are handicapped for approximately the first two years of life.

3. Prematures who do well from the start usually suffer no physical or mental handicaps from prematurity in later years.

4. Those who do poorly during infancy are much more likely to suffer from physical and mental handicaps.

5. Three per cent of the group showed mental deficiency, the cause of prematurity in each instance being toxemia of pregnancy.

6. A large portion of those who did poorly during infancy showed immaturity at birth.

DISCUSSION

Dr. Emile F. Naef (New Orleans): Any time a personal observation of 100 cases is made over a ten year period, I daresay that observer has something pithy to reveal in his remarks.

I agree with Dr. Williams that the high caloric feeding of the newborn in his first forty-eight hours, together with careless nasal catheter feeding, contributes to the high percentage of early mortality. Bear in mind that 3 per cent of all viable newborns are going to be prematures, and of these prematures, we can expect a mortality of some 85 per cent in the first forty-eight hours. The mortality incidence has not been reduced at this early period in spite of all attempts at air-conditioning nurseries, introducing the proper high humidity, or use of whole blood intramuscularly, or careful nasal catheter feeding, together with all the best environmental conditions we are able to furnish. Therefore, the weight of the burden, as remarked by Clifford, of Boston, falls on the pediatrician although we feel it is more an obstetric than a pediatric fault.

The high incidence of mortality is related to intracranial hemorrhage induced at delivery, in the early stages of labor, due to increased fragility of blood vessels. It may be ascribed to some congenital malformation, some faulty position, or encephalitis, but intracranial hemorrhage is still the most common cause of death in the premature. For every week of fetal life that is added to the premature, we can expect an increase in the weight of the child, and it has been estimated that an eight ounce increase in weight is going to add immeasurably to the viability of the child and its chance of survival. If we recall that at the fifth month of fetal life, the fetus gains four or five ounces per week, at the seventh month six to eight ounces per week, and by the ninth month is gaining 10-12 ounces per week, it can be readily realized that each week of intra-uterine life adds to the viability which will enhance the opportunities for survival in the premature.

I would like to ask Dr. Williams if he made any observation in regard to the sex of his series of cases. It has been repeatedly observed that there is a higher incidence of mortality in the male premature. Also, in subsequent pregnancies the multiparous mother seems to have a higher incidence of prematurity. I also would like to ask how many of the series of prematures were twins. The twin pregnancy delivered at full term with the weight of prematurity is certainly a much more viable organism than the premature sibling of the same weight.

Dr. Charles T. Williams (In conclusion): Answering Dr. Naef, I think that we had maybe half a dozen sets of twins and one set of triplets in this series. I do not believe any observation was made as to sex, concerning the rate of death between males and females.

INDICATIONS AND CONTRAINDICATIONS FOR SURGICAL INTERVENTION IN THE TREATMENT OF ABORTION*

P. GRAFFAGNINO, M. D.
NEW ORLEANS

The termination of pregnancy before the sixth month, or in the abortion period, is fraught with many dangers and complications. In the cases of abortion requiring surgical intervention, the high mortality and morbidity are probably due to the lack of a clear understanding of the surgical principles involved. Therefore, I feel that a great deal of good can be accomplished by reviewing the well recognized operative procedure indicated in each particular type of case, and to acquaint those physicians who are not trained in surgery to recognize these values and direct the patient to one so trained, thus giving her the best of all possible surgical aid.

Two points should be kept in mind in the treatment of these patients: First, the importance of the judicious choice of the operative procedure to be employed in each case; and second, constant awareness of the inherent dangers involved when the uterine and peritoneal cavities are invaded.

Surgical intervention in the treatment of abortions is indicated in the following instances: First, in abortion for therapeutic purposes; and second, in the complications and sequelae of abortion.

THERAPEUTIC ABORTION

The age, the parity, the general condition of the patient and the need for immediate or elective surgery play a great part in determining the type or types of operative procedures that can be employed in therapeutic abortions.

The usual technic of therapeutic abortion may be subdivided into three stages: (1) Methods of dilating the cervix; (2) methods of emptying the uterus; and (3) methods of evacuation of the uterus through a uterine incision.

Methods of dilating the cervix: During the first 12 weeks of pregnancy and under the usual aseptic hospital conditions, the graduated metal dilators can be used with uniform safety. The advantages of the dilators are their easy sterilization and quick dilatation of the cervical canal. Their disadvantage is a tendency to produce cervical tears, thereby inviting the risk of hemorrhage and injury.

After the twelfth week of pregnancy, cervical dilatation can best be accomplished when there is no urgent need for immediate termination of pregnancy by the use of gauze packing into the lower uterine segment and cervix. In introducing packs, extreme care must be observed so that the packs do not come in contact with vulval and vaginal infected secretions because contamination of the uterine cavity can result if these precautions are ignored.

The chief danger in the use of packs lies in the fact that they usually lock in secretions, thereby retarding drainage and favoring infection. If packing does not result in sufficient dilatation within from 24 to 36 hours, the use of a small hydrostatic bag with light traction until dilatation reaches 3 to 5 cm. is indicated.

Methods of emptying the uterus: In cases where spontaneous evacuation does not take place after thorough dilatation of the cervical and lower uterine canals, the finger, dull curette or ovum forceps usually suffices to accomplish this purpose in the early months of pregnancy (up to the twelfth week).

After the twelfth week, when abortion does not take place spontaneously following thorough dilatation of the cervix either by dilators, packs or bags, stimulation of uterine contractions with pituitrin or ergotrate or the manual removal of the uterine contents must be resorted to. These manipulations may be done under either general or local anesthesia. For the latter, a one-half to two per cent novocain solution plus one c.c. of pituitrin injected into the uterine wall reduces bleeding to a minimum and gives satisfactory analgesia.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

Methods of evacuation through a uterine incision: Only trained obstetricians and surgeons should attempt any of the incisional procedures recommended, since the danger of hemorrhage or injury to surrounding organs can be great in unskilled hands. The uterus may be emptied through either vaginal or abdominal incision.

VAGINAL INCISIONS

Vaginal incisions are restricted to multiparous women with relaxed vaginal tissues in whom the pregnancy has not advanced beyond the fourth month. The obstetrician has the choice of two methods of vaginal incision: (1) The cervical incision; and (2) the fundal incision.

In the cervical incision method, a semilunar incision is made to loosen the vaginal flap over the cervix and bladder. After lifting the bladder above the line of cervical incision, the cervix is incised longitudinally, the incision extending into the lower uterine segment. The contents of the cavity are now easily removed, and the incision in the uterus closed with interrupted chromic O catgut sutures. The vaginal and cervical mucous membranes are next sutured with chromic O catgut.

In the fundal incision method, or vaginal celiotomy, after the usual inverted-T incision in the vaginal mucosa which permits the separation and lifting of the base of the bladder from the cervix and facilitates the exposure and incision of the peritoneal reflection between the bladder and the uterus, the uterus is advanced forward and incised longitudinally about the level of the fundus. The uterine contents are then removed and the incision in the uterus closed with several layers of chromic O catgut sutures. The peritoneal fold and the vaginal incision are also sutured with chromic O catgut interrupted sutures. Sterilization, if desired, can be readily accomplished during this procedure.

ABDOMINAL INCISION

Hysterotomy by the abdominal route is particularly indicated in primiparous individuals with pregnancy advanced beyond the fourth month and where sterilization is also indicated. Under local or general anesthesia, the peritoneal cavity is entered through a longitudinal or transverse abdominal incision. The uterus is incised, contents removed, and uterine incision closed with several layers of interrupted chromic O catgut sutures. If sterilization is indicated, it can easily be accomplished by one of the many methods available for this purpose. The abdominal wound is closed in the usual manner.

The dangers of therapeutic abortion are the risk of infection and perforation of the uterus.

Risk of infection can be reduced to a minimum by the exclusion of all cases of cervical infection, the employment of strict aseptic precautions, and the complete removal of the uterine contents. Except in emergency, evacuation of the uterus should always be done in the hospital under the proper surgical conditions.

Perforations will rarely occur when the cervix has been thoroughly opened, if instrumentation is gentle, and especially if, before operation, a bimanual examination is made to determine the size and position of the uterus. Another precaution to be observed is one concerning the use of ovum forceps. These should never be used to pull tissues from the uterine wall but only to remove already loosened tissues which are free in the uterine cavity.

SURGERY FOR THE COMPLICATIONS AND SEQUELAE OF ABORTION

Acute metritis, parametritis, suppurative adnexitis, pelvic abscesses, thrombophlebitis, pelvic peritonitis and general peritonitis are not uncommon complications of septic abortions. Although many of these complications respond to the conservative type of treatment such as blood transfusions, sulfanilamide, specific sera and supportive measures, an occasional case not responding to this treatment must be treated surgically. The conditions warranting surgery are: Some types of intrapartum infection; abscesses of the uterus or adnexa; localized thrombophlebitis; and beginning spreading peritonitis. The recognition of these certain types of abortional complications requiring surgical intervention may be difficult and at times are not recognized until too late to expect a favorable outcome after surgery. The course of these complications may be progressive and therefore, only by constant observation and repeated vaginal examinations can the change in the pathologic picture be appreciated.

Once a diagnosis is established, the operative procedure necessary, no matter how radical, should be employed. The infected tissues should be removed and ample drainage provided for the diseased tissues which must necessarily be left behind.

CLASSIFICATION OF COMPLICATIONS

Acute endometritis: The majority of these cases respond to the symptomatic plan of treatment and surgery is rarely indicated.

Parametritis, pelvic cellulitis: These intrapartum infections usually follow cervical lacerations and are common. The majority of these cases end in localization of the infection with resolution. However, if there be a greater spiking of the temperature curve, a marked leukocytosis, and rapid pulse rate, a spread of the infection with abscess formation is indicated. If, by bimanual examination, localized collections of pus are found, immediate incision and drainage by the vaginal or abdominal route is imperative. Often, this operation is performed even though there may be no bulging in the cul de sac or fornices.

Vaginally, the usual transverse incision is made posterior to the cervix and, by blunt dissection, the involved tissues are located and abscess cavities opened and drained. Packing the peritoneum with fluffed gauze aids in drainage if no free pus is found. There are many instances where the vaginal incisions are not sufficient for drainage or are impossible because of the location of the exudates. In this group, an abdominal extraperitoneal drainage by Cullen's technic should be established.

Localized uterine infections: When localized uterine infections are associated with tubal and ovarian infections with some involvement of the blood vessels in the placental area or in the folds of the broad ligament with or without suppuration, a transperitoneal exploration with excision of the diseased structures (salpingectomy, oophorectomy, hysterectomy, phlebectomy) is indicated. If the diagnosis be made early and the operative procedure not used as a last resort measure, many of these patients can be saved by this form of surgery.

Peritonitis: Extension of the infection takes place early or late in the course of the disease. Frequently, it is the last step in the sequelae of events which begins with an endometritis, metritis, parametritis and pelvic peritonitis. Pain, tenderness, or rigidity in the lower abdomen with a more continuous elevation of temperature and a greater acceleration of the pulse rate indicate the onset of pelvic peritonitis and hiccoughs, vomiting, distention, and the pinched facial expression usually indicate spreading general peritonitis. The sero-purulent or purulent exudates which accumulate in the pelvic cul de sac may result in a general peritoneal infection with intestinal paresis. This paralysis of the viscera favors the formation of adhesions between residual collections of pus and the intestines and thereby results in abscess formations in the cul de sac or in any region of the peritoneal cavity.

In the treatment of septic postabortive peritonitis, the value of surgical intervention will depend largely upon the type of infection and the presence or absence of blood stream infection. When the latter occurs, surgery is always contraindicated. In the less virulent types, even though a diffuse peritonitis exists, recovery is still possible if complete drainage be promptly established by posterior colpotomy or transperitoneal pelvic drainage.

SUMMARY

1. The purpose of this review is to remind the physician of the hazards attending abortion in general and to acquaint him with the proper procedures when surgical intervention becomes necessary in their treatment.

2. There are two cardinal points to be kept in mind: the importance of selecting the suitable operative procedure for each particular case; and a warning of the dangers involved when the uterine and peritoneal cavities are invaded.

3. If conservative methods for therapeutic abortion such as the use of drugs, dilators, packs or bags do not suffice, more radical surgical procedures such as manual removal of uterine contents or vaginal or abdominal incision must be resorted to.

4. There is a limited but quite definite place for surgery in the treatment of the complications and sequelae of abortion, and when a diagnosis is established, the operative procedure necessary, no matter how radical, should be employed.

DISCUSSION

Dr. Philips J. Carter (New Orleans): Abortion is the technical term for interruption of pregnancy before viability. All interruptions before viability are termed abortion. The nomenclature of "miscarriage" has been dropped.

The most common indications for surgical intervention in treatment of abortion are found in the progressive diseases of the lungs, heart and kidneys; others are malignancy, nutritional diseases and threatened abortion with profuse and continuous hemorrhage. Holland, in 1924 to 1930, reported 160 cases in which 44 per cent fell in this class. In acute and progressive type of tuberculosis we advocate emptying of the uterus by the fifth month. In auricular fibrillation with congestive heart failure, interruption should be done before five months, or as early as we can before that time. Interruption is also advocated in chronic nephritis and pre-eclampsia which does not respond to treatment.

The important factor is deciding on the course of treatment. Usually, emptying of the uterus at two or three months, under aseptic procedure, can be done without danger of infection or hemorrhage. If the operation is done quickly with sponge forceps there is no more danger at three months than at two months. At four and five months and after, the question of hysterotomy and sterilization is considered. There are two surgical methods in performing therapeutic abortion: first, the vaginal and, second, the abdominal route. In early pregnancy dilatation with Hegar dilators or Goodell dilator and sponge forceps, curettage, packing of uterus and removal of packing in 24 hours rids the uterus of its contents. Some operators practice vaginal hysterotomy, using ovum forceps and the product is extracted without destroying it. Usually in primiparae at two or three months' pregnancy, where indications are justified, dilate and use sponge forceps and pack. Where the patient has already begun to abort and bleeding occurs, packing will relieve the uterus of its contents or stimulate contraction of the uterus, and when the packing is removed the contents usually follow.

The abdominal route is used in primiparae with long cervices where dilatation would consume hours and would affect the general condition of the patient. In those cases I believe the abdominal route and sterilization should be done, if done for one of the conditions which will interfere or will have a definitely bad influence on the patient's future pregnancies.

In cases that are septic we treat the patient watchfully and do not empty the uterus unless there is active hemorrhage and the patient's condition is progressing. Then we pack the uterus and allow the packing to release contents of the uterus. I do not like to do that except in cases of extreme hemorrhage.

Dr. Rhett McMahon (Baton Rouge): I just want to make a few remarks in regard to early surgical intervention and complications or sequelae. In the hands of specialists in well equipped hospitals with assistants and laboratory and necessary help, I think undoubtedly the intervention early in the complications will afford good results but for the average practitioner, the occasional operator, I think the results are far better if we confine ourselves to the conservative handling of these cases.

Whether or not surgical intervention should be used depends, I believe, entirely upon the time of diagnosis. Unless the diagnosis of complications is made very early, which is impossible in the hands of a great many of us, I believe, as I said, the conservative treatment will bring better results.

Dr. Graffagnino (In conclusion): Let there be no misunderstanding about my attitude toward conservatism in the treatment of these cases; I believe that it should be given a trial in all cases. However, I know from personal experience that over-conservatism is dangerous in many instances and many patients have been lost because of a lack of enough courage to attack these cases surgically while surgery might still have been of some aid.

WHY WE SHOULD BE FAMILIAR WITH THE ROENTGENOLOGIC APPEARANCE OF DEVELOPMENTAL CHANGES OF THE SKELETON*

A. MAYORAL, M. D.
NEW ORLEANS

I once became very indignant at an attorney who remarked that the desired expert medical testimony was always available if sought. The attorney, an older and wiser man as well as a friend, was very much amused by my indignation, and, smiling, reminded me that I quite often rendered expert testimony in his cases.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

"Now," asked he, "have I ever tried to influence your opinion? I send you a client," he continued, "you form your opinion, and if it is in conflict with that of the opposing expert, you testify; if not, I seek someone else. While on the stand you experts agree on one point only; that the claimant was injured. The judge, a layman on medical problems, hears conflicting opinions from learned members of the medical profession and eight times out of ten he gives the claimant the benefit of the doubt. Thus I win my point."

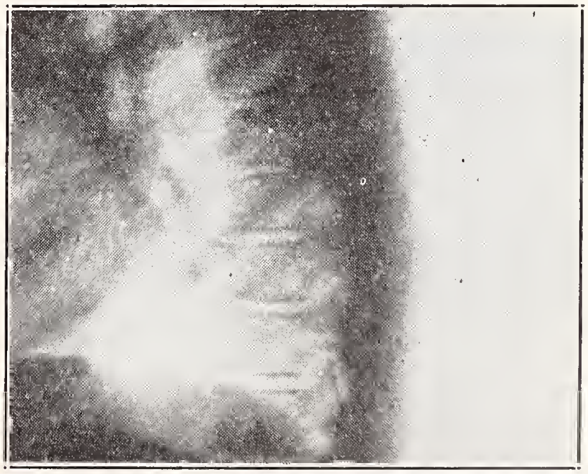
This happened many years ago, but little change has occurred in the method of procedure of the law in handling compensation cases, and the shrewd attorney still continues to capitalize on the discrepancies of expert testimony.

Conflicting opinions of medical experts are sometimes unavoidable. The opinions rendered are usually honest, based on knowledge of the facts in the case, and past experience, and not opinions molded to fit the needs of the case.

You will agree with me, that the increased protection and liberalization of compensations offered labor have increased the period of disability following injury, and have created most unusual and puzzling post-traumatic phenomena that have led and will probably continue to lead physicians to render fallacious opinions. For such cases, I feel, we are not wholly to be blamed. There are, however, conditions that have been the basis for inexcusable, erroneous, and conflicting expert testimonies. The mistakes, as I see them, have usually been made by men whose roentgenologic material or whose experience in roentgenology is limited. The conditions I refer to are developmental changes of the skeleton; that is why I feel we should be familiar with their roentgenologic appearance.

The spine is the most prolific anatomic section in developmental changes. It also presents most baffling diagnostic problems. I will, therefore, consider it first. "Pain in the back" is a very common complaint. Injury to the back is also common. In the presence of injury it seems logical to suppose that pre-existing pain can be aggravated and that the injured person is inclined to attribute his pain to the present injury and forget his past. I must admit that we are far from agreed as to the actual cause of many of the symptoms patients complain of in this region. I refer to persons who have no interest in exaggerating their condition. But I feel certain that the anatomic alterations I am about to show you should not be held responsible *per se* for damaging lesions and prolonged symptoms.

The following slides were made from films taken from our general files. Some were accidental findings. Similar findings, however, have been diagnosed as old fractures. In all of the cases in which we have changed the diagnosis, the change has been accepted. Many of the injured have dropped court action when informed, while others have accepted cessation of compensation without further complaint. These facts are strong arguments in favor of the contention that congenital anomalies *per se* are symptomless. It is obvious that within the allotted time I can show only a few selected slides.



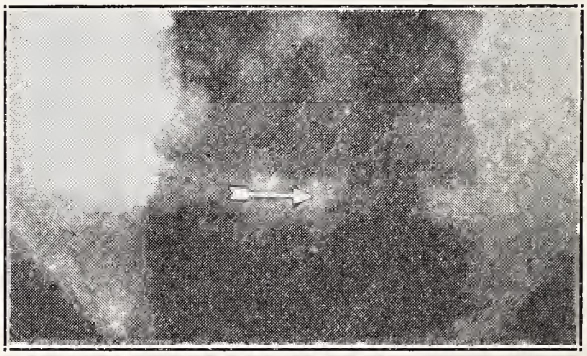
Slide No. 1 is a normal spine of a twelve year old child. The epiphyseal ossification of the cartilaginous discs of the bodies show well. I am certain that at this age these epiphyses are never taken for fractures. When, however, a single epiphysis

fails to unite (slide No. 2.) the anomaly has often been mistaken for chip fracture of the body.

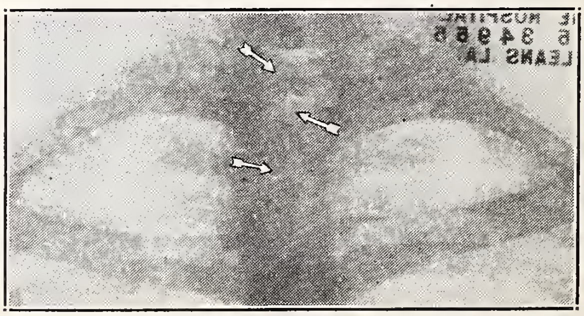
Slide No. 3 shows a clear space crossing the body of the vertebrae parallel to the superior and inferior borders usually midway. Any vertebra or any number of vertebrae can potentially show the condition, but it is most often seen in the dorsal region. When the body also shows some flattening, the resemblance to compressed fractures is very striking. Actually this roentgenologic appearance is caused by an unusually large and persistent nutrient foramen.

Slide No. 4 shows fusion between the bodies of the sixth and the seventh cervical vertebrae. In this patient it was an accidental finding, causing no deformity. This condition, generally known as Klippel-Feil syndrome, is responsible for many disfiguring deformities of the neck. They appear usually early in life.

Slide No. 5 the Sacrum: The arrow points to an ununited epiphysis of the lamina of the lateral surface. This is not a chip fracture.

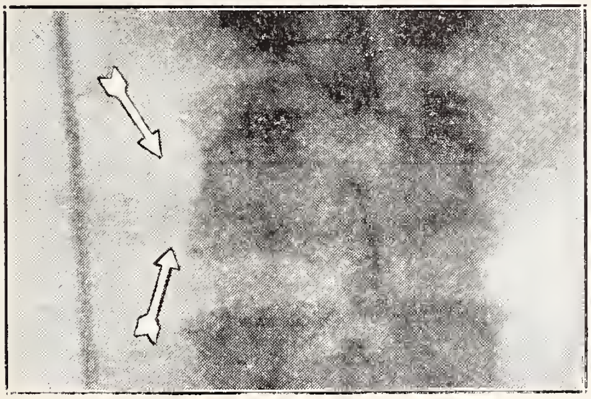


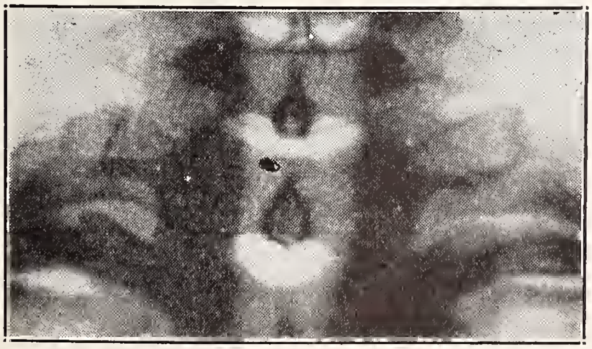
Slide No. 6 demonstrates an accessory nucleus for the inferior articulating process of the fourth lumbar. The condition is relatively rare. In the roentgenograms it resembles a detached portion of bone from the tip of the articulating process.



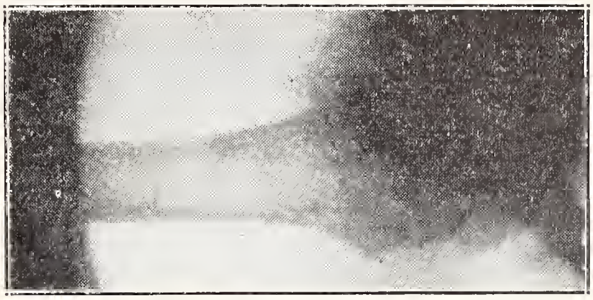
Slide No. 7 shows a spina bifida caused by failure of the laminae to fuse posteriorly to form the spinous process, the space being gapped by fibrous tissue. It has been found in all segments of the spine, very common in the first sacral segment. Every vertebra presents the potentialities for the deformity. This patient showed the abnormality in the first, second, and third dorsals. When no external deformity accompanies the bony changes it is called occulta.

Non-union of the transverse processes in the lumbar region is very common and so easily recognized (slide 8) that no one should commit errors and accept them for fractures. When the anomaly is found in other vertebrae, the fourth lumbar (slide 9), a very rare finding, the error is possible but should be avoided.

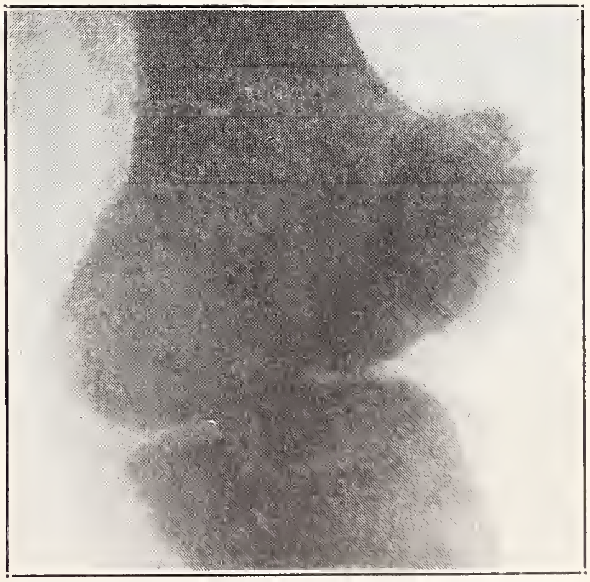




Slide No. 10 presents a very annoying deformity, one that is and has often been diagnosed as an old ununited fracture. Actually it is the same type of anomaly seen in the previous slides but in the dorsal region. The non-union is in the transverse process of the first dorsal vertebra, actually seen once in every 1500 chests.



Slide No. 11 reveals a cleavage in the distal end of the acromium process. Careful scrutiny reveals the well rounded smooth edges of the line of cleavage. The anomaly is caused by failure of union of the acromial epiphysis. It is bilateral in a good percentage of the cases. In the presence of trauma it has been mistaken for fracture. Unfortunately in the usual antero-posterior roentgenograms of the shoulders the anomaly is seldom recognized. This explains why we are not familiar with its roentgenologic appearance. When the rays are directed from below upward obliquely through the axilla, the resultant roentgenogram leaves no doubt. The anomaly is known as os-acromiale.



Slide No. 12 shows that in the upper portion of this patella there is a detached piece of bone. This, however, is not a fracture but a congenital deformity generally known as patella bipartita. The diagnosis made in most of these patients was "old ununited fractures." Evidently the fact that the breach was not of recent date has been generally recognized. In all of these patients the original injury was so insignificant that no x-rays were believed necessary at the time and were made several weeks later.

CONCLUSION

It seems logical to assume that if the injured are radiographed early many erroneous interpretations will be avoided.

DISCUSSION

Dr. E. R. Bowie (New Orleans): I think that Dr. Mayoral has chosen an excellent subject for a general meeting such as this. If we were talking only to radiologists it would be different than with the general man who is not so well trained in all the factors of radiologic diagnosis. This is of extreme value.

The only thing one could add to such a presentation would be to consider other parts of the body; taking up various developmental abnormalities of the foot, hand, and all the rest of the skeletal structure. This presentation which Dr. Mayoral has given has been sufficient to call our attention to the existence of these things and the necessity of differentiating developmental abnormalities from other conditions.

Dr. Stakely Hatchette (Lake Charles): To reemphasize what Dr. Mayoral and Dr. Bowie have said I wish to say that out in southwest Louisiana on several occasions we have almost had to refute the testimony that non-radiologists were ready to give in court concerning cases of this kind. No radiologist wants to get up in court and deliberately say that a man is mistaken in calling one of these persistent epiphyses a fracture. It is embarrassing both to the physician and to the radiologist who has to do it. I think if the physicians who own and operate x-ray machines would read Dr. Mayoral's article, when it is in the Journal, it will be of untold benefit to them.

Dr. Mayoral (In conclusion): I have nothing to add except to emphasize the importance of this subject. It is embarrassing for anyone to deny, in court, the existence of injury—when a congenital anomaly has been erroneously diagnosed "fracture."

GLAUCOMA

THE RESPONSIBILITY OF THE GENERAL PRACTITIONER*

M. CARL WILENSKY, M. D.†
NEW ORLEANS

We are seeing entirely too many tragic and pitiful cases of glaucoma in our clinics and occasionally in our offices. And because the condition has been overlooked in its earlier stages, these people present themselves with markedly reduced vision and even blindness, in some cases. Many of these patients give a history of having recently had glasses changed two, three or more times in a vain effort to improve their vision. And you may or may not be surprised to learn that some of these have been seen by general practitioners who unfortunately have advised their patients to buy a pair of glasses, or told the patients their vision was failing because they were developing cataracts. In a few instances the general practitioner has been guilty of prescribing drops for the patients and telling them that they have to wait until the cataracts are "ripe" to have them removed.

When these patients can no longer see, they then believe their cataracts are ripe and present themselves to the eye surgeon for a cataract extraction, thus hoping to have their sight restored. A mere glance through the ophthalmoscope reveals the tragic story. Lo and behold, instead of cataracts there is found an atrophic and excavated optic disc as a result of the increased intra-ocular pressure.

CASE REPORT

I will give the history of one of these sad cases, that of Mrs. C., a white female, aged 47 years. Her history is more dramatic perhaps than many of the others, because she was seen, not by one, but by at least four or more different physicians, not one of whom apparently recognized the red flag she literally waved before their eyes.

About ten years ago she began to have pain behind her left eye. The eye ran water. If she lay awake or worried, the eye would start to hurt; it might last all next day and finally wear off. Sometimes she would awake in the morning with pain around the eye and the eye would ache. She had to stay in bed all day, pain was so severe. She bathed her eyes with warm boric acid and took purgative medicine, thinking that her trouble might be due to her liver. These attacks would come on about once a month; if she strained her eyes, attacks came on more often.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

†From the Department of Ophthalmology, Tulane University of Louisiana, and the Eye, Ear, Nose and Throat Hospital, New Orleans.

The right eye began to pain about five years ago. She used to sit up at times with sick neighbors and give them medicine. At times, when she looked at lamp light, noticed that there was a rainbow around the lamp and her eye hurt so, she had to give up and go home.

About the first of November, 1938, she went to a physician for a pain in her hip and lower part of her back. She also told him about the pain in her head and eyes. The doctor advised her that she had cataracts and should go to Charity Hospital.

Shortly afterward she went to another physician who also advised her that her failing vision was due to cataracts and he gave her a note to one of our local hospitals. The admitting intern looked at her eyes, said she had cataracts and sent her into the hospital. A doctor came by that evening, looked into her eyes and said the cataracts were not ripe. She was in the hospital five days. The nurse discharged her and told her, "Come back in three months or six months." She asked the nurse if it was all right to stay away six months. The nurse replied, "yes, the cataracts will be good and ripe at the end of six months." Mrs. C. spoke with other patients on the ward. An old lady, who had just had a cataract extraction, told her that she would not be able to see when the cataract was ripe. So our patient went home to wait for the "skim" to grow completely over her eyes.

Her vision finally deteriorated to the extent that she was bumping against the furniture, because she could not see it. Friends then prevailed and took her to Dr. Weiss. He, of course, readily recognized the condition and advised her to go to the eye clinic, where I saw her the following day. We found her vision was reduced to the stage that she could only recognize hand movements, she could not see the fingers. Intra-ocular tension was 75 mm. of mercury and the optic disc showed marked glaucomatous excavation.

DISCUSSION

Repeatedly I have heard in our clinics, exclamations from the attendants, lay individuals, and even from the interns, wondering why no greater efforts are being made to prevent some of these tragedies through an educational program. It is my humble opinion, after years of observation and a number of discussions with residents of the eye service, who had previously been out in general practice, that the average general practitioner throws up his hands at the word glaucoma. He feels that glaucoma belongs to the vocabulary of an eye physician and about all he should remember or know about the condition is that it means increased intra-ocular tension. If you will pardon my saying so, I think that the medical practitioner who takes this attitude is wrong. The medical practitioner, if he would only try, could be a sight saver, but before you can diagnose a case of glaucoma you must first think of glaucoma. If a patient complains of abdominal pain and the doctor thinks only of appendicitis, he will not ask the questions or elicit the signs which could lead to a diagnosis say, of ectopic pregnancy or of pneumonia. Yet when it comes to glaucoma which, during 1938, was given as the cause of blindness in 11.1 per cent of those persons receiving aid for the blind in Louisiana, we have been negligent. I believe this state of affairs has come about because the medical men and certainly the lay public have not had brought before them the ravages of and the toll that glaucoma is exacting. I do not think they have heard much about the importance of early diagnosis and treatment of glaucoma. I wonder if the average medical man realizes the amount of glaucoma that exists.

This was brought forcefully to my attention by the case history of a physician I sawing during the past year for Dr. Blum. According to his history, about a year ago he noticed that the vision in his right eye was somewhat dim and the eye felt heavy. This gradually wore off several days later. He then went to an optometrist and had glasses fitted. The optometrist told him the sight in his right eye was poorer than the left. About six months later a light "scum" came over the right eye. There was no pain, just a heavy feeling in the eye, so he finally decided to consult an oculist. I asked him why he did not have his eyes examined by an eye physician in the first place and if the possibility of glaucoma had occurred to him. He replied, "I know I should have gone to an oculist the first time, but I didn't think there was anything wrong with my eyes. I just thought I needed some glasses. As for glaucoma, it is such a rare condition; we general practitioners see so few cases of glaucoma that the thought just didn't occur." But that is a fallacy. Glaucoma is not a rare disease. I can recall more than one morning during which I have seen three new cases of glaucoma in my clinic. Now if one of the many eye clinics in our city can have three new cases of glaucoma in one morning you can readily realize it is no rare disease.

INCIDENCE

If the average doctor will only think in terms of the number of cases of cancer or tuberculosis he has in his own practice, he might also get the false notion that there are few cases of tuberculosis or cancer and that these conditions are therefore rare.

I have here some very interesting but startling figures furnished me by the National Society for the Prevention of Blindness. Lehrfeld and Reber examined the record of 1,876 patients with glaucoma seen at the Wells Hospital in Philadelphia from 1926 to 1935. I will quote from their summary: "From the standpoint of public health, the most significant finding is the fact that 784 eyes had vision already reduced below 20/200 when the patients first presented themselves at the hospital. This is a commentary on the state of ignorance of the early signs and symptoms of glaucoma existing among patients, to some extent among the family physicians and certainly among non-medical ocular practitioners."

Emile de Groz, in a lecture he delivered in the United States in Oct., 1930, stated, "taking one year, 1929, as an example we had 737 glaucomatous eyes in our out-patient department; only 32 of all those eyes were shown in the prodromal stage of the disease, a little more than 4 per cent then were seen during the early stage of the disease."

Von Graefe who gave us the iridectomy in the treatment of glaucoma, stated 70 years ago "the degree of recovery depends essentially on the length of time the eye has already been affected."

CLASSIFICATION

Glaucoma is the name applied to several varieties of a disease in which increased intra-ocular tension is the most characteristic sign. Glaucoma may be subdivided into:

I. Primary glaucoma in which clinically there can be found no antecedent disease in the eye to account for the increase in tension.

II. Secondary glaucoma in which there are definite pathologic changes to account for the increase in tension such as:

1. Iritis or iridocyclitis in which there develop adhesions between the iris and the lens, or the iris angle is blocked by leukocytes and iris pigment.
2. Occlusion of the central vein.
3. Severe ulcers of the cornea, especially if they perforate and anterior synechia results.
4. Dislocation of, or injuries to the lens either by accident or operation.
5. Swelling of lens during the formation of a cataract.
6. Intra-ocular growth.
7. Intra-ocular hemorrhages.

III. Buphthalmos or hydrophthalmos which is the congenital or infantile type; there may be an absence of Schlem's canal.

Primary glaucoma may be further subdivided into the acute inflammatory or *congestive* type in which the increase in tension is rapid; and the *non-congestive* type or glaucoma simplex where the tension increases gradually and the eye ball accommodates itself to the altered conditions.

You probably all recall the very nice little table printed in most student textbooks on ophthalmology that gives the differential diagnosis between (1) acute inflammatory or congestive glaucoma; (2) iritis and (3) conjunctivitis. This is an important differential diagnosis and it has been stressed by instructors and has been given frequently as an examination question on ophthalmology. For one thing, it shows the difference between a conjunctival injection which is not so serious and a ciliary injection which means that there is trouble inside of the eye. Secondly, it differentiates iritis (in which the important drug is atropine) from glaucoma, in which condition atropine is contraindicated because it would further increase the intraocular tension, possibly resulting in destruction of the eye.

I believe we have made a great mistake in the past. We have been so eager to convey to the student the idea that atropine is dangerous in glaucoma, while it is the ideal drug in iritis or iridocyclitis that we have only stressed the congestive type of glaucoma which might be confused with iritis. On the other hand, we have neglected to impress the student with glaucoma simplex, the non-gestive type which is much more prevalent. I dare say that when many doctors think of glaucoma they only think of the type that presents a red, painful eye that has to be differentiated from iritis. I believe I would be safe to hazard a guess that a diagnosis of glaucoma would not occur to the average man if he saw an eye that had no injection, as in the case mentioned earlier, and especially if there were no complaints of pain.

Therefore, it is not exactly their fault either. We have had and are having campaigns to make early diagnoses and institute proper treatment for cancer, tuberculosis, and other conditions. But they have not heard much about the importance of early diagnosis and treatment of glaucoma.

According to Fuchs, one per cent of all patients seen by eye physicians have glaucoma.

I am not worried so much about the patients with acute glaucoma being looked after. They have a red, painful eye and they are going to seek advice. These persons are seen early and incidentally respond much better to surgery than do the cases of glaucoma simplex which are usually seen late. Just as in the case of early cancer, if there is no pain and the symptoms are few and slight, the condition goes undiagnosed, so with glaucoma simplex, it remains undiagnosed until vision is markedly and irreparably lost.

Some patients with glaucoma simplex complain of some pain or discomfort in or around the eye. It may be erroneously considered as merely a brow ache; that it is due to a bilious attack, indigestion, or what have you. The possibility of glaucoma is entirely overlooked. A number of patients who had severe unilateral pain were considered as having migraine.

SUMMARY

This brings me back to the real theme of my presentation. Before you can diagnose a case of glaucoma you must first think of glaucoma. Now the question comes to mind: How is one to suspect or make a diagnosis of glaucoma if there are no irritative or inflammatory signs; that is, if the eye is not injected and especially where there is no complaint of pain. Suspicion should be aroused by:

A. The patient's history if:

1. An elderly person continues to have trouble with his glasses. They just do not seem to be satisfactory. He changes glasses often.

2. The patient gives a history of having had periods of dim or misty vision which may have been accompanied by some discomfort in or around the eyes.

3. There is a history of vision gradually failing.

4. A history of seeing rings, a halo, or better still, a rainbow around lights. Unfortunately, however, many of the cases of glaucoma simplex will not give a history of this valuable diagnostic sign, of seeing rainbows around lights. But the woman whose history I have related did see rainbows around lights; she had a history of failing vision, and also had pain in and behind her eyes. Yet this history which should have led to a diagnosis of glaucoma was ignored by a number of practitioners because they did not think of glaucoma.

B. Upon examining the eye, some of the following signs may be observed:

1. The anterior chamber is usually shallow.

2. The cornea may be dull.

3. The pupil may or may not be dilated; it may react sluggishly. In acute congestive glaucoma the pupil is usually dilated and does not respond to light. Sometimes from the dilated pupil, we may get a dull

slightly greenish reflex, that has been unfortunately and erroneously diagnosed as being due to cataracts, as in the case of Mrs. C.

4. Intra-ocular tension will be found elevated, if the patient is observed over a period of time. You cannot depend on one tonometric reading. Just as in tuberculosis, at times, the patient's temperature may be normal; but if temperature is recorded at four hour intervals the temperature will be elevated at certain times. In glaucoma the tension is usually highest in the morning. The tension may be roughly estimated by palpating the eye ball with the index fingers.

5. With the ophthalmoscope, a glaucomatous excavation may be seen. While this is an important diagnostic aid, we would like to find and diagnose the cases early, before the ophthalmoscope reveals permanent damage and excavation of the nerve head.

C. Typical changes in the fields of vision. Early, there may be a comet-like scotoma, Seidel's sign; later Bjerrum's sign, Rönne's step and a characteristic reduction first in the nasal portion of the field. The field may become gradually constricted without the patient being aware of it until he has a tubular field. Rarely you find an individual who has noticed this and will tell you, "Doctor, I can see fairly well straight ahead, but I can't see anything to the side."

The fields are important not only as a diagnostic measure but are the most satisfactory method we have for following the progress of the disease. As long as the individual retains his field of vision we know the glaucoma has been checked. If the field of vision is reduced on subsequent tests, we know that the ravages of glaucoma are taking their toll.

CONCLUSIONS

Since glaucoma is the disease of the eye most frequently ending in permanent blindness, it is imperative that this condition be kept in mind. Whenever a patient presents himself with a history or any signs and symptoms suggestive of glaucoma, this lead should be thoroughly investigated until a diagnosis of glaucoma is made or ruled out. Many tragic case histories illustrate what happens when patients are fitted with glasses several times and no suggestion is ever made that there may be some diseased condition of the eyes causing the poor vision. When the eye physician finally sees such patients, they are, entirely too often, practically blind. Early diagnosis is essential and proper treatment must be instituted before sight has been permanently damaged.

DISCUSSION

Dr. Charles A. Bahn (New Orleans): It is a pleasure to discuss Dr. Wilensky's contribution because from an ophthalmic point of view, it concerns the subject of greatest importance on this program. Of the 100,000 blind in the United States, approximately 14,000 lost their sight from glaucoma. A large majority lost their sight because the disease was not recognized and intelligently treated early in its course.

The average story of the glaucoma patient, as Dr. Wilensky has told you, is this. Following a variable period in which the person notices in varying proportions, loss of sight, pain and ocular redness, he consults someone for relief. Obviously, all of these symptoms are not present in every case, and neither do they appear at the same time. The healer whose aid is sought may be a physician, or may be a non-medical healer, such as a druggist, or optometrist. The glaucoma patient should have better sense than to consult a non-medical healer. The non-medical healer should be honest enough to say frankly he has no conception of glaucoma, or what to do for it, and be sufficiently interested to refer the patient to someone who does. Education alone will help solve this part of the problem. If the patient has sufficient intelligence to consult a physician whom he has a right to believe has an understanding of his bodily ailments, that physician should assume the responsibility of either treating the patient with reasonable efficiency, or helping him find someone who will.

I realize that diseases of the eye play a very small part in the practice of the average general physician, and that he gives but little thought to the treatment of glaucoma. We physicians, however, should realize our responsibility to the public by not permitting glaucoma patients to advance to blindness without making a reasonable effort to save their sight. In other words, when middle-aged persons consult any physician for ocular pain, redness, or blurred vision, the physician should either understand and intelligently treat that patient, or should refer him to an ophthalmologist who will give him the best possible chance to save his sight.

SPLENECTOMY AND PURPURA HEMORRHAGICA*

MILTON FINN, M. D.
NEW ORLEANS

In analyzing all the splenectomies done at Touro Infirmary from 1924 to 1939 inclusive, it was noted in a surprising fashion that the greatest number of splenectomies done was divided equally between the entities of Banti's disease and purpura hemorrhagica as shown in table 1. But more surprising than all was the remarkably low mortality in purpura hemorrhagica as compared to Banti's disease.

A statistical review was then undertaken and is herewith presented, first giving the history and symptomatology of purpura hemorrhagica, followed by statistical results of all of the 12 cases of purpura hemorrhagica, and concluded with a follow-up to date on every splenectomy done for purpura hemorrhagica that could be contacted.

TABLE 1
SPLENECTOMIES 1924 TO 1939

Etiology	No. of Cases	Recovered*	Died*
1. Purpura hemorrhagica	12	11 (91.7%.)	1 (8.3%)
2. Banti's disease	12	5 (41.7%)	7 (58.3%)
3. Ruptured spleens	5	3 (60.0%)	2 (40.0%)
4. Congenital hemolytic jaundice	3	3 (100.0%)	0
5. Von Jacksch's anemia	3	3 (100.0%)	0
6. Miscellaneous	5	3 (60.0%)	2 (40.0%)
a. Chronic mylogenous leukemia	1	1 (100.0%)	0
b. Aplastic anemia	1	0	1 (100.0%)
c. Splenoptosis	1	1 (100.0%)	0
d. Polycythemia vera	1	0	1 (100.0%)
e. Pancreatic adenoma	1	1 (100.0%)	0
Total	40	28 (70.0%)	12 (30.0%)

*The so-called "recovered" group indicates that group of patients who left the hospital in good condition. The "died" group indicates that group of patients dying during the operation or following the operation.

HISTORY

Werlhof,[1] in 1775, first described purpura hemorrhagica, but it was not until 1887 that Denys[2] discovered that the blood platelets were missing in this disease. Hayem,[3] in 1896, found that the clot was non-retractile. In 1910 Duke[4] noted that the bleeding time was prolonged and Hess[5] in 1916 showed marked weakening in the capillaries evidenced by petechiae. Anemia, normal coagulation time, and normal or increased white blood cells complete the blood picture diagnosis of purpura hemorrhagica.

Symptomatically the greatest complaints include purpura, epistaxis, bleeding excessively from small cuts, bleeding gums, menorrhagia, metrorrhagia, melena and hematemesis.

Physically, pallor is present. There are present purpuric spots on the body, varying in size, shape and color and without being confined to or having a predilection for any particular locality on the body. There may or may not be an enlarged spleen present.

Frank,[6] in 1915, and Kaznelson,[7,8] in 1916, both brought forth theories for the absence of blood platelets in purpura hemorrhagica. Frank stated that the fault was in the bone marrow 'in not producing the normal amount of platelets and thus an "essential thrombopenia." Kaznelson asserted that the fault lay in the reticulo-endothelial system, most likely the spleen, and that the reticulo-endothelial system of the spleen destroyed the blood platelets put out by the bone marrow in normal numbers. Other theories have been advanced but the trend is toward that of Kaznelson's.

As to the treatment for idiopathic purpura hemorrhagica, many have been tried. Vitamin C, sesame oil with fat soluble T, liver extract, parathyroid, x-ray, and snake venom have been used.[9] The most favorable response has been to splenectomy as stated by Rankin and Anderson,[10] Brill and Rosenthal, [11, 12] Cohn and Lemann,[13] Whipple,[14] Eliason and Ferguson,[15] Eliason and Johnson,[18] and Payne and Whitehead.[17]

STATISTICAL RESULTS

In 12 cases of purpura hemorrhagica, taken in consecutive order, it was noted that seven or 58.3 per cent were males, and five or 41.7 per cent were females. This concurs with McLean, Kriedel, and Caffrey,[18] and Pemberton,[19] who state in their series that there are two males to every female who have idiopathic purpura hemorrhagica. Whipple,[20] however, found that 88 per cent were females and 12 per cent males in his series. It was also noted as shown in table 2 that five of the seven males, or 71 per cent, were under 20 years of age when they came to the hospital for diagnosis and treatment, while three of the five females, or 60 per cent, were over 20 years of age.

---

*A statistical report from the Department of Surgery, Touro Infirmary.

TABLE 2

Case No.	Sex	Age in Years	Chief Complaint
1.	M	61	Purpura
2.	F	21	Purpura
3.	M	3	Purpura
4.	F	23	Purpura
5.	M	38	Purpura
6.	M	20	Purpura
7.	M	4	Purpura
8.	M	5	Epistaxis
9.	F	34	Purpura
10.	M	17	Hematemesis
11.	F	18	Menorrhagia
12.	F	3	Purpura

Nine of the 12, or 75 per cent, came in with the chief complaint of purpura, one with menorrhagia, one with hematemesis, and one with epistaxis.

In table 3 it will be seen that the duration of symptoms ranges from three days to three years. The division into acute and chronic cases has been made. There were four, or 33.3 per cent, acute cases, and eight, or 66.6 per cent, chronic cases.

On physical examination 11, or 91.7 per cent, had visible purpura and only four, or 33.3 per cent, had palpable spleens.

In reviewing these records it was found that some of these records were inadequately kept as to blood pictures before operation for splenectomy and after operation. However, all the data present on the records were used. In table 4, the red blood cell count, the white blood cell count, the hemoglobin, the neutrophilic count, and the lymphocytic count before splenectomy and on dismissal from the hospital, are shown. One notes that following splenectomy the red blood cell count had been increased by over a million cells and that the hemoglobin had been increased about 11 per cent. The neutrophilic and lymphocytic count have remained about the same before and after splenectomy. The increase in white blood cells, I believe, is a relative one.

TABLE 3

Case No.	Duration of Symptoms	Type of Case	Physical Signs
1.	3 days	Acute	Purpura, anemia
2.	8 mos.	Chronic	Purpura, palpable spleen
3.	2 yrs.	Chronic	Purpura, bleeding cuts
4.	3 yrs.	Chronic	Purpura
5.	2 mos	Chronic	Purpura, bleeding gums
6.	3 yrs.	Chronic	Purpura
7.	3 days	Acute	Purpura
8.	4 days	Acute	Purpura, epistaxis
9.	3 yrs.	Chronic	Purpura, palpable spleen
10.	7 mos.	Chronic	Hematemesis, palpable spleen
11.	4 wks.	Chronic	Purpura, vaginal bleeding
12.	3 days	Acute	Purpura, palpable spleen

TABLE 4

BLOOD PICTURES BEFORE SPLENECTOMY AND ON DISMISSAL

Case No.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Average
RBC (in millions)													
before operation	3.59	2.07	none	3.69	4.17	3.05	2.50	4.00	3.25	3.55	3.50	4.90	3.47
on dismissal	4.72	2.77	died	none	5.20	3.50	4.81	none	4.60	5.25	5.00	5.00	4.54
WBC (in thousands)													
before operation	3.60	11.55	none	none	4.50	3.00	6.00	12.00	6.80	4.00	7.50	7.00	6.59
on dismissal	16.25	10.25	died	none	10.50	5.00	10.00	10.25	10.80	6.00	12.00	17.00	10.80
Hemoglobin (%)													
before operation	45	20	none	none	65	75	45	75	54	70	60	90	59.9
on dismissal	75	25	died	none	90	70	85	none	58	84	80	97	70.4
Neutrophils (%)													
before operation	90	71	none	none	75	57	62	85	66	64	61	55	68.6
on dismissal	75	79	died	none	78	81	63	79	71	68	74	48	71.6
Lymphocytes (%)													
before operation	10	29	none	none	25	43	38	15	34	36	39	45	31.4
on dismissal	25	21	died	none	22	19	37	21	29	32	26	52	28.4

Comparison of the bleeding times before splenectomy and on dismissal from the hospital is made in table 5. The average bleeding time before splenectomy was 24.5 minutes, and on dismissal from the hospital after splenectomy it was 4.8 minutes. There was a very slight increase in the coagulation times, from 2.90 to 2.75 minutes. The increase in blood platelets after splenectomy was remarkable. The average number before splenectomy was 51,236 platelets. After splenectomy on discharge from the hospital the average number of blood platelets was 260,650.

TABLE 5

Case No.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Average
Bleeding time (in minutes)													
before operation	30	75	none	11½	20	none	6½	30	none	3¼	20	none	24.5
on dismissal	3¼	1	died	none	4	9	4¾	5	none	5	7	4	4.8
Coagulation time (in min.)													
before operation	none	3	none	2	2½	none	2½	3	none	3¼	4¼	none	2.90
on dismissal	1	1½	died	none	1	3	3	4	none	3	none	5½	2.75
Bl. platelets (in thousands)													
before operation	25	80	none	150	1	0	95	.6	175	30	7	0	51.236
on dismissal	330	190	died	none	290	200	280	650	210	130	116.5	210	260.650

The rise in the number of thrombocytes following splenectomy in idiopathic purpura hemorrhagica was followed in several cases. In case No. 1, before splenectomy, the platelets numbered 25,000 and the bleeding time 30 minutes. In six hours after splenectomy, there were 42,500 platelets; in 24 hours, 57,500; in 48 hours, 95,00 and in 72 hours 145,000. On the twenty-first day after operation the platelets were 330,000 and the bleeding time was three and a quarter minutes as shown in figures 1 and 2. In case No. 5, the platelets were 1,000 before operation and the bleeding time 20 minutes. In four hours postoperatively, the platelets were 60,000; in 24 hours, 160,000; and in 48 hours 260,000. The bleeding time on the eleventh day was four minutes, and the platelets numbered 290,000. Still another case, No. 8, shows the increase in thrombocytes following splenectomy. Before operation there were 600 platelets and the bleeding time was 30 minutes. In 48 hours there were 50,000 platelets; in four days, 110,000; in five days, 200,000; in six days, 250,000 and the bleeding time on this day was five minutes.

Of the 12 splenectomies, only one eviscerated. This was case No. 12. On the eighth day postoperatively, she eviscerated spontaneously. She was taken immediately to the operating room and repaired with through-and-through dermal sutures. Her convalescence thereafter was uneventful. At the present moment she is in excellent health. The percentage of evisceration is 8.3 per cent.

Pemberton[21] reported a 4 per cent mortality in 41 splenectomies for purpura hemorrhagica; Rosenthal[22] reported 16.3 per cent in 43 cases; Eliason and Johnson,[23] no mortality in seven cases; and Whipple[24] no

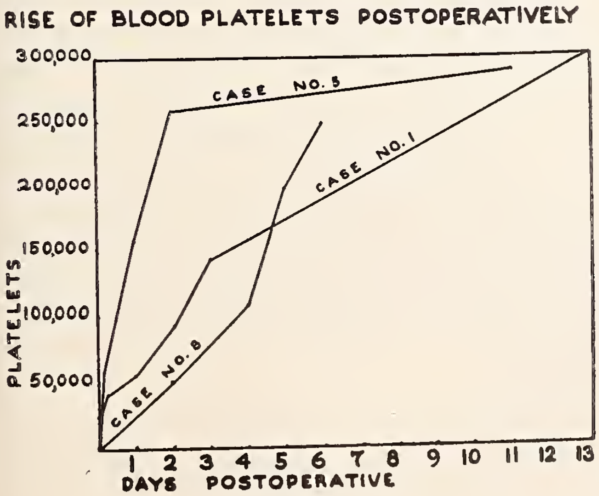


FIGURE 1

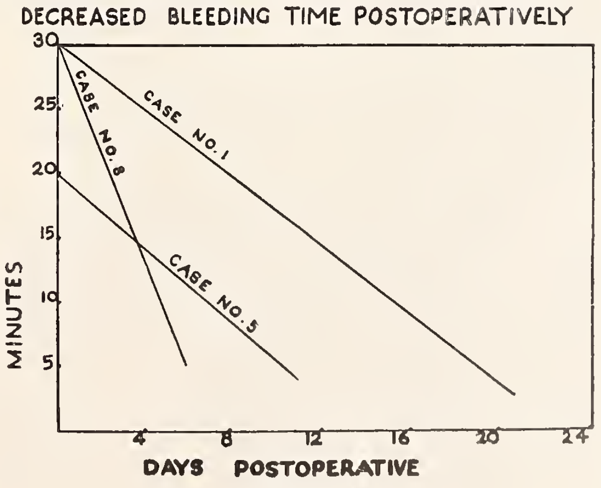


FIGURE 2

mortality in 21 cases. In this series there was one death postoperatively in 12 cases, 8.3 per cent. This was case No. 3, dying 36 hours postoperatively from vomiting and acidosis.

FOLLOW UP TO 1940

Case No. 1. was operated upon in 1926 at the age of 61. He died in 1932, the cause of death being unknown.

Case No. 2 was operated upon in 1927 at the age of 21. She is living and well. She has occasioned no petechiae and has had two children without any difficulty. Living out of town, no blood picture could be obtained.

Case No. 3 was operated upon in 1929 at the age of three. He died postoperatively from vomiting and acidosis.

Case No. 4 was operated upon in 1930 at the age of 23. She is living but whereabouts are unknown.

Case No. 5 was operated upon in 1930 at the age of 38. He is living and well. He has noted several small petechiae over his body on several occasions, but has had no trouble whatsoever and is enjoying good health. On dismissal from the hospital his red blood count was 5,200,000; white blood cells, 10,500; hemoglobin 90 per cent; neutropils, 78 per cent; lymphocytes, 22 per cent; coagulation time one minute; bleeding time, 4 minutes; and platelets were 290,000. At this writing the red blood count is 5,600,000; white blood cells 10,750; hemoglobin, 100 per cent; neutrophils, 60 per cent; lymphocytes, 40 per cent; coagulation time two and a half minutes; bleeding time three minutes and platelets are 193,000.

Case No. 6 was operated upon in 1932 at the age of 20. His whereabouts are unknown.

Case No. 7 was operated upon in 1932 at the age of four. He is living and in good health. He has had a tonsillectomy without any trouble at all. He has had no petechiae. His blood picture at the time of dismissal from the hospital was; red blood cells, 4,810,000; white blood cells, 10,000; hemoglobin, 85 per cent; neutrophils, 63 per cent; lymphocytes, 37 per cent; coagulation time, three minutes; bleeding time, four plus minutes; and platelets 280,000. At this writing his red blood count is 4,680,000; white blood count, 5,000; hemoglobin, 80 per cent; neutrophils, 57 per cent; lymphocytes, 43 per cent; coagulation time, three minutes; bleeding time four minutes, and platelets are 255,000.

Case No. 8 was operated upon in 1934 at the age of five. His whereabouts are unknown.

Case No. 9 was operated upon in 1934 at the age of 34. She is living and well, occupies her time as a housewife. She has no complaints. Occasionally, she has noticed a few petechiae but no free bleeding. Her blood picture on dismissal from the hospital showed: Red blood cells, 4,600,000; white blood cells, 10,800; hemoglobin, 85 per cent; neutrophils, 71 per cent; lymphocytes, 26 per cent; and blood platelets were 210,000. Her blood picture at this writing is: Red blood cells, 3,890,000; white blood cells, 9,000; hemoglobin, 80 per cent; neutrophils, 74 per cent; lymphocytes, 26 per cent; coagulation time two minutes; bleeding time three minutes and blood platelets 220,000.

Case No. 10 was operated upon in 1934 at the age of 17. He is living and in good health. His blood picture was unobtainable at this time.

Case No. 11 was operated upon in 1936 at the age of 18. She is living and well. She has noted occasional petechiae, but no other symptoms or signs. On dismissal from the hospital her red blood count was 5,000,000; white blood count, 12,000; hemoglobin, 80 per cent; neutrophils, 74 per cent; lymphocytes, 26 per cent; bleeding time seven minutes, and platelet count 116,500. At this writing her red blood cells are 4,650,000; white blood cells, 9,000; hemoglobin, 90 per cent; neutrophils, 69 per cent; lymphocytes, 31 per cent; coagulation time, two and a half minutes; bleeding time three and a half minutes, and platelet count 260,000.

Case No. 12 was operated upon in 1938 at the age of three. On her eighth postoperative day she eviscerated. She was re-sutured in the operating room, and her postoperative course was uneventful thereafter. She is living and in good health. An occasional petechia is noted by the mother, but no other symptoms are noted. On dismissal from the hospital her red blood count was 5,000,000; white blood count, 17,000; hemoglobin, 97 per cent; neutrophils, 48 per cent; lymphocytes, 52 per cent; coagulation time five and one-half minutes; bleeding time four minutes, and platelet count was 210,000. At this writing her red blood count is 4,940,000; white blood count, 8,000; hemoglobin, 75 per cent; neutrophils, 53 per cent; lymphocytes, 47 per cent; coagulation time six minutes; bleeding time three minutes, and platelet count is 187,000.

Altogether one case died postoperatively, and one case died six years after his operation. There are two cases whose whereabouts are unknown. There are eight patients living and well today and who have experienced only an occasional petechia. The blood pictures, which could be obtained, have remained almost the same as the blood pictures that these cases had on dismissal from the hospital following their splenectomy.

SUMMARY

1. A review of 12 splenectomies performed for purpura hemorrhagica from 1924 to 1939 at Touro Infirmary is presented.
2. Seventy-five per cent of the patients came in with the complaint of purpura, and 91.7 per cent had visible purpura.
3. One hundred per cent had anemia, prolonged bleeding time and decreased to absent blood platelets which were corrected by splenectomy.
4. One case out of 12 died postoperatively, for a percentage of 8.3 per cent.
5. In the follow up of these cases to 1940, eight are living and well, two are unheard from and one died six years after operation.

CONCLUSION

Splenectomy is favorable treatment for purpura hemorrhagica.

Many thanks to Dr. J. D. Rives and to Dr. I. Cohn for their help and advice.

REFERENCES

1. Werlhof, P. G.: Opera Medica, edited by J. E. Wichman, p. 748, 1775.
2. Denys, J.: Etudes sur la coagulation du sang dans un case de purpura avec diminution considerable des plaquets, La Cellule, Vol. 3, 1887.
3. Hayem, C.: Comp. Rend. Acad. d. sc., Vol. 123, p. 899, 1896.
4. Duke, W. W.: The pathogenesis of purpura hemorrhagica with reference to part played by blood platelets, Arch. Int. Med., 10:445, 1912.
5. Hess, A. F.: The blood and the blood vessels in hemophilia and other hemorrhagic diseases, Arch. Int. Med., 17:203, 1916.
6. Frank, E.: Die essentielle thrombopenie, Berl. Klin. Wchnshr., 52:454, 1915.
7. Kaznelson, P.: Thrombolytische Purpura, Ztschr. f. klin. Med., Berl., 87:133, 1919.
8. Ibid: Verschwinden der hämorrhagischen Diathese bei einem Falle von essentielle Thrombopenie (Frank) nach Milzexstirpation. Splenogene thrombolytische Purpura., Wien. klin. Wchnschr., 29:1451, 1916.
9. Rosenthal, N.: The course and treatment of thrombocytopenic purpura, J. A. M. A., 112:101, 1939.
10. Rankin, F. W., and Anderson, R. S.: Splenectomy for hemorrhagic purpura of children, Ann. Surg., 93:752, 1931.
11. Brill, N. E., and Rosenthal, N.: The curative treatment by splenectomy of chronic thrombocytopenic purpura hemorrhagica, Am. J. Med. Sci., 32:503, 1923.
12. Ibid: Treatment by splenectomy for essential thrombopenia, Arch. Int. Med., 32:939, 1923.
13. Cohn, I., and Lemann, I. I.: Splenectomy as a treatment for purpura hemorrhagica, Surg. Gynec. & Obst., 38:596, 1924.
14. Whipple, A. O.: Medical-surgical splenopathies, Bull. N. Y. Acad. Med., 15:174, 1939.
15. Eliason, E. L., and Ferguson, L. K.: Splenectomy in purpura hemorrhagica, Ann. Surg., 96:801, 1932.
16. Eliason, E. L., and Johnson, J.: Splenectomy, Surgery (St. Louis), 2:823, 1937.
17. Payne, R. L., and Whitehead, R. C.: Purpura hemorrhagica, Internat. Clinics, 2, Series 44, 1938.
18. McLean, S., Kricdel, K., and Caffrey, J.: Hemorrhagic thrombocytopenia in childhood, J. A. M. A., 98:387, 1932.
19. Pemberton, J. de J.: Results of splenectomy in splenic anemia, hemolytic jaundice and hemorrhagic purpura, Ann. Surg., 94:755, 1931.
20. Whipple, A. O.: Medical-surgical splenopathies, Bull. N. Y. Acad. Med., 15:174, 1934.
21. Pemberton, J. de J.: Results in splenic anemia, hemolytic jaundice, and purpura hemorrhagica, Ann. Surg., 94:755, 1931.
22. Rosenthal, N.: The course and treatment of thrombocytopenic purpura, J. A. M. A., 112:101, 1939.
23. Eliason, E. L., and Johnson, J.: Splenectomy, Surgery (St. Louis), 2:823, 1937.
24. Whipple, A. O.: Medical-surgical splenopathies. Bull. N. Y. Acad. Med., 15:174, 1939.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio
For one year: Lucien A. LeDoux, M. D.,
Vice-chairman.
H. W. Kostmayer, M. D.
Secretary
For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF
John H. Musser, M. D.........................*Editor-in-Chief*
Willard R. Wirth, M. D..*Editor*
Edwin L. Zander, M. D.....................*Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D.....................*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE DRAFT BOARD

The medical profession of the State of Louisiana has responded nobly, as every one knew it would, to the demands made upon it to supply doctors for the several boards which have been set up for the induction of men into the army service. The physicians of Louisiana have been expected to supply a physician for the Appeal Board. One doctor has been assigned to every one of the draft boards for the examination of the recruit-to-be, and, lastly, nine Medical Advisory Boards have been organized for the purpose of acting as consultants in doubtful cases. These Medical Advisory Boards will assist the examining physician in questionable cases and likewise if the man to be inducted into the service feels that he has some physical disqualification which should bar him from service and this physical disability has not been diagnosed correctly by the examining doctor, he in turn can appeal to the Medical Advisory Board for its opinion.

With the first board the Medical Society has had little to do. In conjunction with the other two boards, under the aegis of the President of the State Medical Society, Dr. C. Grenes Cole, state Chairman of the Medical Preparedness Committee of the American Medical Association and the medical representative of Governor Jones, who in turn had the help and advice of the Councilors of the several congressional districts who in turn have called upon the Presidents of the District and Parish Societies, it has been possible to fill each and every medical position that the Government requires for the examination of the inductee. The response by the physicians to the request for their help has been spontaneous. Almost without exception every man who has been asked to serve has done so willingly and cheerfully. Naturally there have been some mistakes made and possibly some feelings hurt in the selection of the examining physicians. This was a job that had to be done immediately and promptly and very little time was given for its completion, but it can be said in all honesty that the Medical Preparedness Committee of the state has tried to its utmost to be fair and just in selecting the best men for the jobs.

The nine Medical Advisory Boards are scattered throughout the state. There will be three in New Orleans and one each in Shreveport, Baton Rouge, Lake Charles, Monroe, Alexandria and Lafayette. The specialists who compose these boards look like a Who's Who in Louisiana medicine. The specialists of the profession have volunteered for this work without reservation.

There will be ninety-four examining boards for each one of which one physician has been selected according to the locality in which the board will sit. Here again without question the best men in the community have volunteered their services and have agreed to serve on these boards. It is understood at the present time that each man who has been selected by the Governor and has been sworn in for the purpose of examining recruits, will be privileged to call upon other men to help in the examinations and these men likewise it is anticipated will be given some form of recognition. A great deal of time will have to be spent by these men, not at any one minute but spread over a period of months and it is only right and fair that they should have the opportunity of calling upon others to assist them. It will be necessary to nominate the associate, or associates, have his name approved at Jackson Barracks and on securing approval he will have to take the required oath and be sworn in.

To those men who have volunteered and who receive no pay, all honor should be paid. Their position is a delicate one. Tremendous pressure undoubtedly will be brought upon them at times to exclude certain men on the basis of a minor physical disability. It is a tribute to the honesty of the medical profession that no one anticipates any difficulty on this score. Lastly, it should be pointed out that it is the organized profession of the state who has given its services and that there is practically not a single man on any of the boards who does not belong to the State Medical Society.

CONSCRIPTION AND THE YOUNG DOCTOR

One of the problems that has been agitating the younger physician in conjunction with the recent conscription is what his status would be were he called to one or another of the camps. The young doctor who is married and has dependents of course would be put in the deferred group without much question, but on the other hand there is a considerable number of men who might be called and who do not have dependents and yet who are skilled professional men. The Government and the War Department have been very insistent on the fact that they were trying to fit round pegs into round holes and that a man who has special training in anything would be able to carry on his specialty after he was drafted. It is obviously ridiculous to think of a doctor being assigned to a camp as a buck private and serving in a minor position analogous to an unskilled laborer when he has had years of training and is fit to do something else. It would seem the logical conclusion, if the governmental agencies are sincere in their desire to get the right man for the right place, to have such a man, were he not already in the Medical Reserve, make application immediately for the Medical Reserve, which application, it was stated in a recent meeting in Washington, would be acted upon promptly. In this way within a very short time the young doctor would be commissioned and transferred into the Medical Corps. That is apparently what will happen. The conscripted physician should call the attention of the draft board, before which he appears, to this eventuality and he should point out that even were he used to make up the quota that his particular draft board has to send to camp, that it would be a question of only a couple of weeks before he would have to be replaced.

ACUTE APPENDICITIS

Medical men all recognize that the treatment of acute appendicitis, without complications, is the immediate removal of the offending organ. There is, however, considerable disagreement as to how the patient should be handled in the event that one or more complications occur. A symposium on appendicitis read at the recent meeting of the American Medical Association, attempts to clear up this moot point. Two papers will be mentioned, the first by

Stafford and Sprong[1] who analyzed the mortality from acute appendicitis in Johns Hopkins Hospital, and the second by Barrow and Ochsner[2] who recited their experiences with appendiceal peritonitis as observed in the Lexington Clinic and the Charity Hospital of New Orleans.

The crux of the situation seems to have to do largely with the management of perforated appendicitis: Should the patient be operated on immediately or should the so-called expectant treatment with postponement of the operation be carried out? The first observers maintain that the initial step in the treatment of any condition should be the eradication of the source of infection. They support their statement with figures that go to show that prior to the time of immediate operation the mortality rate was nearly twice that of the present series of immediate operations which ran from 1931 to the present time. They contend that the operation does not spread infection. Of 238 patients with abscess, in only two did peritonitis cause death. In the conservative treatment the appendix is not removed and is always a source of future trouble.

The New Orleans and Lexington commentators feel very much the same way as do the two from Baltimore. They definitely express the opinion that patients seen within twenty-four hours should be operated upon. They believe that the conservative treatment is very hard to carry out and certainly that the man who operates only occasionally should perform the operation irrespective of the time the patient is seen. In patients who come into the hospital with symptoms having been present for many hours, the best plan of treatment is conservatism.

In the discussion of these two papers there was not a unanimity of opinion but the consensus was that patients should be operated upon immediately. Stone, of Baltimore, for example, states that "the basic principle of treatment of advanced disease of the appendix is the removal of the diseased organ." Others concur in this opinion. In a review of these two papers, and their discussion, it would seem to be the part of wisdom for the average surgeon to operate immediately, take out the perforated appendix and then only, employ active treatment to combat the infection.

---

[1] Stafford, E. S., and Sprong, D. H.: Mortality from acute appendicitis in Johns Hopkins Hospital, J. A. M. A., 115:1242, 1940.

[2] Barrow, W., and Ochsner, A.: Treatment of appendical peritonitis, J. A. M. A., 115:1246, 1940.

———o———

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

MERCY HOSPITAL

New Orleans

The monthly meeting of the staff was held on Wednesday, October 2, at 8:00 p. m. in the Lecture Room of the hospital. Dr. R. A. Oriol, president of the staff, presided.

Because of the summer vacation period, this was the first meeting since June 5. For this reason, instead of the usual scientific program, the mortality records of the intervening months were brought before the assembly by Dr. Edwin L. Zander. Taken from these records, very interesting papers were read as follows: "Status Asthmaticus" by Dr. N. K. Edrington; "Pancreatic Cysts" by Dr. J. A. Vella; "Hemorrhagic Disease of the Newborn" by Dr. G. J. deReyna.

General discussions of the medical deaths were opened by Drs. Louis A. Monte and Edgar Hull. The surgical deaths were discussed by Drs. F. F. Boyce and J. A. Vella.

The next meeting will be held on Wednesday, November 6, 1940.

Percy A. Phillips, M. D., Sec.

SOUTHERN BAPTIST HOSPITAL

New Orleans

The first fall meeting of the staff was held on Tuesday, September 24, in the chapel. The following papers were presented: "Employment of Plasma in Gastrointestinal Diseases with Case Reports" by Drs. Dan Silverman and R. A. Katz; "Case Report of Pseudo-hermaphrodism" by Drs. E. H. Lawson and H. C. Magee; "Presentation of Two Death Reports" by Dr. R. A. Lucas.

Charles L. Cox, Chairman.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

November 4.	Orleans Parish Medical Society Board of Directors, 8 p. m. Clinico-pathologic Conference Hotel Dieu, 8:15 p. m.
November 5.	Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.
November 6.	Hutchinson Memorial Clinic Staff, 8 p. m. Mercy Hospital Staff, 8 p. m. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
November 7.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
November 11.	Orleans Parish Medical Society, 8 p. m.
November 12.	Eye, Ear, Nose and Throat Society, 8 p. m.
November 13.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. Touro Infirmary Staff, 8 p. m.
November 15.	I. C. R. R. Hospital Staff, 12 noon. New Orleans Dispensary for Women and Children Staff, 8 p. m.
November 18.	Hotel Dieu Staff, 8 p. m.
November 19.	Charity Hospital Medical Staff, 8 p. m.
November 20.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. Charity Hospital Surgical Staff, 8 p. m. The Orleans Tuberculosis Hospital Staff, 8 p. m.
November 21.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
November 22.	Joint meeting of the Orleans Parish Medical Society with the U. S. Marine Hospital Staff, 8 p. m., U. S. Marine Hospital.
November 25.	Louisiana Association of Pathologists, U. S. Marine Hospital, 8 p. m.
November 26.	Baptist Hospital Staff, 8 p. m.
November 27.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. French Hospital Staff, 8 p. m.
November 28.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
November 29.	L. S. U. Faculty Club, 8 p. m.

During the month of October, the Society held one regular scientific meeting, at which the following program was presented:

1. Biographical Sketch: Luzenberg
By Dr. A. E. Fossier
2. Case Report: Bagasscosis
By Drs. Chaillé Jamison and Joe Hopkins
3. Treatment of Postoperative Adynamic Ileus and Obstruction of the Small Bowel with the Miller-Abbott Tube..............By Dr. I. W. Kaplan
4. Cardiospasm—Its Medical Management
By Dr. Donovan C. Browne

A meeting of the Louisiana Association of Pathologists will be held at the Marine Hospital, Monday, November 25, at 8 p. m. The following program will be presented:

1. Opening Address................Dr. Edwin H. Lawson
2. Carcinoma of the Cervix Uteri, Its Effect on the Urinary Tract..................Dr. Bjarne Pearson
3. Mitosis Counts in Neoplasia
Dr. Albert E. Casey
4. Methods for Rapid Preparation of Paraffin Sections..................................Dr. J. G. Pasternack

NEW MEMBERS

The following physicians were elected to active membership in the Society: George E. Burch, Samuel H. Colvin, Jr., and Thomas E. Eddleman; to intern membership Lemann H. Bounds, Robert B. Haspel, Claude Klapper, Richard E. Miller, and Evri B. Mendel.

NEWS ITEMS

Dr. Maud Loeber addressed members of the Loyola Alumnae Association at their first meeting of the school term held September 24.

Dr. Joseph C. Menendez was recently elected Commander-in-Chief of the Veterans of Foreign Wars.

Dr. Howard Mahorner was guest speaker at the meeting of the Coast Counties Medical Society at Gulfport, September 4. The title of his paper was "Peripheral Vascular Disease."

Dr. J. H. Musser was recently appointed President of the State Board of Health.

Dr. Felix A. Planche has been named Chairman of the St. Bernard Parish Board of Health. Dr. Attilio V. Filizola has been named a member of this board.

At the nineteenth annual scientific session of the American Congress of Physical Therapy, held in Cleveland, September 2-6, Dr. Nathan H. Polmer was inducted as president for the coming year.

The subject of his address was "The Evolution of Physical Therapy."

Dr. Edwin L. Zander was recently elected President of the New Orleans Obstetrical and Gynecological Society. Other officers elected were: Drs. Lucien A. LeDoux, first vice-president; J. W. Reddoch, second vice-president; Eugene H. Countiss, secretary; and H. B. Alsobrook, treasurer. The out-going president, Dr. H. Cone Magee, was elected to membership on the board. The members were entertained at a supper at the home of Dr. Magee.

Dr. Morrell W. Miller addressed the Loyola University student body, September 26.

HOSPITAL NEWS

The Baptist Hospital announces the completion of their new nursery. This nursery has 54 bassinets, 2 incubators for premature babies, individual bathrooms, an airconditioning unit and other modern features. With these new facilities the hospital has one of the most up-to-date and complete nursery departments in the South.

WARNINGS FROM THE BETTER BUSINESS BUREAU OF NEW ORLEANS

A man giving his name as James Harbush, has been obtaining money under the guise of being affiliated with the National Foundation for Infantile Paralysis. This man has no such authority. Harbush has operated in various cities, including Chicago and Indianapolis. He may choose New Orleans as his next port of call. If you are contacted on such solicitation, call the Bureau.

Be on guard against one W. E. King, Jr., fictitiously representing himself as an agent of the Columbus Mutual Life Insurance Company of Columbus, Ohio.

TREASURER'S REPORT

Bank balance, August 31, 1940	$4,229.89
September credits	$ 460.62
Total credits	$4,690.51
September expenditures	$ 779.94
Actual book balance, September 30, 1940	$3,910.57

EDWIN L. ZANDER, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting of the Ouachita Parish Medical Society was called to order October 3, 1940, at 7:30 p. m. by Dr. D. T. Milam, president. The minutes of the meeting of June 6, 1940, were read and approved.

The committee appointed at the previous meeting to consult with the Mutual Hospital Association in regard to their letter read its report; it was recommended that the committee submit a written report at the November meeting.

A motion was made by Dr. R. W. O'Donnell that the society tender a birthday party to Dr. R. W. Faulk in honor of his seventy-eighth birthday and his long service in the practice of medicine; also that the president appoint a committee to draw up a biography of Dr. Faulk and invite outsiders to assist, if deemed advisable. This was discussed by Drs. Graves and Milam, who recommended that the committee invite a guest speaker and that the annual (December) meeting be dedicated to Dr. Faulk. This was seconded by Dr. Coon and passed. Dr. George Snellings moved that the annual meeting be called the "Faulk Meeting," this was seconded and passed. Dr. Milam appointed the following committee: Drs. G. Snellings, Graves, Walsworth, Gray, Sr., and McHenry.

Dr. Milam stated that this meeting was held in compliance with Chapter II, Section 3, of the By-Laws which provided that one meeting a year shall be set apart for the full and frank discussion of the business affairs of the profession of the parish. There was no discussion of this question.

Dr. Frost announced that the Southern Tuberculosis Conference would be held here October 21, 22, and 23.

L. L. TITCHE, M. D., Sec.

FOURTH DISTRICT MEDICAL SOCIETY

The fall meeting of the Fourth District Medical Society was called to order at 8 p. m., September 24, 1940, in the amphitheater of the Charity Hospital by Dr. Charles Gowen. Seventy-seven doctors were present from the tri-state area. The minutes of the previous meeting were dispensed with in order to save time. Dr. Riggs introduced Dr. Neal Owens, of New Orleans.

PROGRAM

Dr. Julius Wilson, Assistant Professor of Medicine at Tulane University, New Orleans, was introduced by Dr. Gowen. Dr. Wilson outlined a plan for tuberculosis control in Louisiana. He stated that 2,000 more beds were needed and that control could best be carried out by division of the state into six separate centers under State Board of Health direction. He estimated that by 1950 Louisiana should have 26,000 beds and stated that the approximate cost would be $300,000 a year for maintenance. Dr. Wilson emphasized the importance of tuberculosis control for prevention of spread to non-tuberculous individuals of the state. Dr. Wilson's presentation was discussed by Drs. Harrison, Gilmer and Bender. The second presentation of the evening was by Dr. R. R. Kracke, Professor of Pathology and Bacteriology at Emory University, Atlanta, Georgia. Dr. Kracke spoke on infectious mononucleosis. Dr. Kracke's long experience and diagnostic study of the disease make him an authority on the subject. His presentation was discussed by Drs. Mathews, Webb and Butler.

Election of officers followed the scientific program with these results: Dr. W. R. Mathews was nominated for president and elected by unanimous vote. Dr. J. P. Sanders was unanimously elected vice-president. Dr. N. J. Bender was re-elected secretary.

N. Judson Bender, M. D., Sec.

SOUTHERN MEDICAL ASSOCIATION

The thirty-fourth annual meeting of the Southern Medical Association will be held in Louisville, Kentucky, November 12-15. As usual there will be a perfectly splendid group of essayists, lecturers, and demonstrators. The scientific exhibit will be outstanding, the technical exhibit interesting, and the motion pictures very instructive. Distinguished medical men from all over the South will make this week's convocation an outstanding one. On the program to present papers are the following physicians from Louisiana: Drs. Emma Moss and J. O. Weilbaecher, Jr., C. H. Webb, D. N. Silverman, G. C. Anderson, H. G. F. Edwards, Howard Mahorner, E. L. King, E. C. Smith and D. W. Goldman, R. E. Arnell, C. B. Odom and M. C. Kolczun, Chapman Reynolds. Louisiana is well represented also in the scientific exhibit and motion picture presentation.

DRAFT EXAMINING PHYSICIANS

BOARD	NAME AND ADDRESS
Acadia #1	H. L. Gardiner, Crowley
Acadia #2	Rufus Webb, Rayne
Allen	Lofton Gray, Oakdale
Ascension	H. A. Folse, Donaldsonville
Assumption	W. W. Pugh, Napoleonville
Avoyelles	Philip Jeansonne, Plaucheville
Beauregard	T. R. Sartor, DeRidder
Bienville	J. L. Wade, Arcadia
Bossier	J. B. Hall, Jr., Benton
Caddo #1	W. B. Allums, Shreveport
Caddo #2	H. J. Quinn, Shreveport
Caddo #3	O. C. Rigby, Shreveport
Caddo #4	J. M. Bodenheimer, Shreveport
Caddo #5	C. H. Pardue, Vivian
Calcasieu #1	Ben Goldsmith, Lake Charles
Calcasieu #2	J. G. E. Barham, Lake Charles
Caldwell	D. O. Sherman, Columbia
Cameron	J. D. Colligan, Hackberry
Catahoula	P. W. Calliham, Harrisonburg
Claiborne	E. A. Campbell, Homer
Concordia	E. M. Campbell, Ferriday
De Soto	H. B. Hewitt, Mansfield
E. Baton Rouge #1	J. J. Robert, Baton Rouge
E. Baton Rouge #2	R. G. McMahon, Baton Rouge
E. Baton Rouge #3	Wm. Hays Cook, Baton Rouge
East Carroll	J. P. Davis, Lake Providence
East Feliciana	Clovis Toler, Clinton
Evangeline	Arthur Vidrine, Ville Platte
Franklin	J. D. Rogers, Winnsboro
Grant	A. J. Morat, Colfax
Iberia	H. J. Dauterive, New Iberia
Iberville	Wm. E. Barker, Jr., Plaquemine
Jackson	C. S. McDonald, Jonesboro
Jefferson #1	Chas. Gelbke, Gretna
Jefferson #2	J. S. Kopfler, Kenner
Jefferson Davis	C. A. Martin, Welsh
Lafayette #1	J. O. Duhon, Lafayette
Lafayette #2	C. K. Olivier, Lafayette
Lafourche	C. J. Barker, Thibodaux
LaSalle	Erastus Miller, Jena
Lincoln	S. L. White, Ruston
Livingston	M. Williams, Denham Springs
Madison	H. C. Sevier, Tallulah
Morehouse	W. A. Rodgers, Bastrop
Natchitoches	M. H. Phelps, Natchitoches
Orleans #1	M. P. Boebinger, New Orleans
Orleans #2	J. J. Archinard, New Orleans
Orleans #3	Dan J. Murphy, New Orleans
Orleans #4	L. A. Monte, New Orleans
Orleans #5	W. G. Troescher, New Orleans
Orleans #6	Edw. Faget, New Orleans
Orleans #7	Frank Chetta, New Orleans
Orleans #8	T. A. Jung, New Orleans
Orleans #9	T. F. Kirn, New Orleans
Orleans #10	Robyn Hardy, New Orleans
Orleans #11	B. J. DeLaureal, New Orleans
Orleans #12	E. W. Guidry, New Orleans
Orleans #13	P. G. LaCroix, New Orleans
Orleans #14	Lucian Landry, New Orleans
Orleans #15	P. J. Saleeby, New Orleans
Orleans #16	F. L. Jaubert, New Orleans
Orleans #17	J. M. Davidson, New Orleans
Ouachita #1	F. P. Rizzo, Monroe
Ouachita #2	Ellis Powell, West Monroe
Plaquemines	Ben H. Carlton, Jr., Port Sulphur
Pointe Coupee	F. F. Rougon, New Roads

BOARD	NAME AND ADDRESS
Rapides #1	J. T. Cappel, Alexandria
Rapides #2	R. C. Scott, Lecompte
Red River	W. B. Hunter, Coushatta
Richland	C. C. Thompson, Delhi
Sabine	R. L. Parrott, Zwolle
St. Bernard	N. P. Trist, Jr., Arabi
St. Charles	P. T. Landry, Norco
St. Helena	H. A. Tynes, Orangeville
St. James	L. O. Waguespack, Vacherie
St. John the Baptist	J. S. Parker, Reserve
St. Landry #1	Albert B. Pavy, Opelousas
St. Landry #2	Harry Jenkins, Eunice
St. Martin	J. L. Beyt, St. Martinville
St. Mary	J. C. Berwick, Berwick
St. Tammany	H. E. Gautreaux, Covington
Tangipahoa #1	M. B. Small, Kentwood
Tangipahoa #2	R. C. Korniker, Ponchatoula
Tensas	J. Whitaker, St. Joseph
Terrebonne	H. P. St. Martin, Houma
Union	Geo. A. Ramsey, Farmerville
Vermilion	M. A. Young, Jr., Abbeville
Vernon	M. W. Talbot, Leesville
Washington	E. E. Lafferty, Bogalousa
Webster	S. F. Martin, Minden
West Baton Rouge	D. W. Landess, Port Allen
West Carroll	Dan W. Kelly, Oak Grove
West Feliciana	C. C. Blakeney, St. Francisville
Winn	S. C. Fitz, Winnfield

MEDICAL ADVISORY BOARDS FOR THE DRAFT

BOARD #1

HEADQUARTERS—CHARITY HOSPITAL

Internist	S. C. Jamison, Vice-Chairman, New Orleans
Surgeon	Urban Maes, Chairman, New Orleans
Otolaryngologist	Val Fuchs, New Orleans
Ophthalmologist	H. F. Brewster, Secretary, New Orleans
Neuropsychiatrist	G. C. Anderson, New Orleans
Orthopedist	H. T. Simon, New Orleans
Pathologist	J. R. Schenken, New Orleans
Roentgenologist	E. R. Bowie, New Orleans
Dentist	S. D. Gore, New Orleans

BOARD #2

HEADQUARTERS—TOURO INFIRMARY

Internist	Randolph Lyons, Chairman, New Orleans
Surgeon	Alton Ochsner, New Orleans
Otolaryngologist	F. E. LeJeune, Vice-Chairman, New Orleans
Ophthalmologist	Victor Smith, New Orleans
Neuropsychiatrist	T. A. Watters, Secretary, New Orleans
Orthopedist	Guy A. Caldwell, New Orleans
Pathologist	W. H. Harris, New Orleans
Roentgenologist	Leon Menville, New Orleans
Dentist	F. J. Wolfe, New Orleans

BOARD #3

HEADQUARTERS—BAPTIST HOSPITAL

Internist	Sam Hobson, Chairman, New Orleans
Surgeon	R. B. Harrison, New Orleans
Otolaryngologist	Spencer B. McNair, New Orleans
Ophthalmologist	Charles Bahn, New Orleans
Neuropsychiatrist	Edmund McC. Connely, New Orleans
Orthopedist	E. D. Fenner, New Orleans
Pathologist	E. H. Lawson, Secretary, New Orleans
Roentgenologist	L. A. Fortier, New Orleans
Dentist	S. L. Tiblier, New Orleans

BOARD #4

HEADQUARTERS—OUR LADY OF THE LAKE SANITARIUM, BATON ROUGE

Internist	T. C. Paulsen, Baton Rouge
Surgeon	W. B. Chamberlin, Baton Rouge
Neuropsychiatrist	T. H. Pargen, Jackson
Ophthalmologist	Rufus Jackson, Baton Rouge
Orthopedist	T. Jeff McHugh, Baton Rouge
Pathologist	Brinsfield King, Baton Rouge
Radiologist	Lester J. Williams, Baton Rouge
Dentist	Harry J. Babin, Baton Rouge

BOARD #5

HEADQUARTERS—CHARITY HOSPITAL, LAFAYETTE

Internist	C. C. deGravelles, Chairman, New Iberia
Surgeon	O. P. Daly, Lafayette
Otolaryngologist	Jos. D. Martin, New Iberia
Ophthalmologist	L. B. Long, Lafayette
Neuropsychiatrist	L. A. Prejean, Lafayette
Orthopedist	Albert Tisdale, Secretary, Lafayette
Pathologist	C. E. Hamilton, Lafayette
Roentgenologist	John Miles, Lafayette
Dentist	James A. Comeaux, Lafayette

BOARD #6

HEADQUARTERS—ST. PATRICK HOSPITAL, LAKE CHARLES

Internist	J. D. Frazar, De Ridder
Surgeon	T. H. Watkins, Lake Charles
Otolaryngologist	O. W. Moss, Lake Charles
Ophthalmologist	D. C. Iles, Lake Charles
Neuropsychiatrist	S. F. Hatchette, Secretary, Lake Charles
Orthopedist	R. G. Holcombe, Lake Charles
Pathologist	L. A. Hebert, Chairman, Lake Charles
Roentgenologist	G. C. McKinney, Lake Charles
Dentist	A. W. Guillory, Lake Charles

BOARD #7

HEADQUARTERS—BAPTIST HOSPITAL, ALEXANDRIA

Internist	O. B. Owen, Alexandria
Surgeon	P. K. Rand, Alexandria
Otolaryngologist	B. M. Wilson, Alexandria
Ophthalmologist	N. T. Simmonds, Alexandria

Neuropsychiatrist	M. S. Freiman, Pineville
Pathologist	Ralph Lampert, Alexandria
Roentgenologist	H. O. Barker, Alexandria
Dentist	W. B. Barry, Alexandria

BOARD #8

HEADQUARTERS—ST. FRANCIS SANITARIUM, MONROE

Internist	M. W. Hunter, Monroe
Surgeon	J. Q. Graves, Monroe
Otolaryngologist & Ophthalmologist	P. L. Perot, Chairman, Monroe
Orthopedist	Scott Hamilton, Secretary, Monroe
Neuropsychiatrist	C. P. Gray, Monroe
Pathologist	John Pracher, Monroe
Roentgenologist	D. M. Moore, Monroe
Dentist	S. A. Collins, Monroe

BOARD #9

HEADQUARTERS—CHARITY HOSPITAL, SHREVEPORT

Internist	Sam Kerlin, Chairman, Shreveport
Surgeon	Joe Heard, Shreveport
Otolaryngologist	John T. Crebbin, Shreveport
Ophthalmologist	John L. Scales, Shreveport
Neuropsychiatrist	Dean Duncan, Shreveport
Orthopedist	H. A. Durham, Shreveport
Pathologist	W. R. Mathews, Secretary, Shreveport
Roentgenologist	W. R. Harwell, Shreveport
Dentist	F. M. Talbot, Shreveport

FARM SECURITY ADMINISTRATION

Mr. Steele T. Kennedy, Regional Health Specialist of the FSA has sent in the following report of parishes in which group medical projects are operating and the percentage of medical bills that were paid during the period between January 1 and January 30, 1940:

Bossier	100%	Ouachita	100%
DeSoto	97%	Pointe Coupee	100%
East Carroll	70%	Red River	84%
Evangeline	100%	Sabine	95%
Grant	96%	St. Helena)	
Jackson	74%	East Feliciana)	57.5%
Lafayette	100%	St. Martin	88%
LaSalle	90%	Webster	68%
Madison	41%	West Carroll	84%
Morehouse	71%	Winn	97%
Natchitoches	63%		

Note: Lafayette, Pointe Coupee, Webster, Madison, St. Martin, St. Helena, East Feliciana and Natchitoches parishes operated the full six months' period. The remaining parishes began operations since the first of the year and had been in operation from three to five months during the above reporting period.

SOUTHERN TUBERCULOSIS CONFERENCE

A very successful Southern Tuberculosis Conference was held in Monroe, Louisiana, October 21-23. This meeting was attended by men who are interested in the problems of tuberculosis from all over the South. The conference dealt not only with medical subjects but there was also a non-medical section in which the general problems of tuberculosis, where they touched the laity, were considered. There were speakers from points in the North and East as well as from the South. Appearing on the program were the following men from Louisiana: Drs. R. H. Frost, P. R. Kilmer, Julius Wilson, W. H. Perkins, who spoke at the general session on the subject "Types of Tuberculous Infection as a Means of Epidemicity"; Sydney Jacobs, who presented the subject "Negro Outpatient Pneumothorax," and Louis F. Knoepp. Dr. R. Alec Brown was Chairman of the Conference of State Directors of Tuberculosis Control.

HOSPITAL DIRECTORS' MEETING

There was conducted a ten-day postgraduate institute for superintendents and assistant superintendents of the South in New Orleans, beginning October 21. Participating in the program were such distinguished physicians as Dr. James A. Hamilton, president of the American College of Hospital Administrators, Dr. S. J. Hall, executive officer of the U. S. Marine Hospital, Dr. Leon S. Lippincott, superintendent of Vicksburg Sanitarium, Dr. R. C. Buerki, superintendent of the Wisconsin General Hospital, Dr. Malcolm T. MacEachern, associate director of the American College of Surgeons, as well as many other well-known hospital administrators and physicians.

NEWS ITEMS

Dr. W. J. Otis was made a councilor of the Southern Psychiatric Association at the recent meeting in Jacksonville, Florida.

Assistant Surgeon Francis J. Weber has been relieved from duty in New Orleans, and ordered to proceed to Columbus, Georgia, for duty as district health officer.

MENVILLE TO HEAD CHARITY HOSPITAL RADIOLOGY DEPARTMENT

Dr. Leon J. Menville, Professor of Radiology at Tulane, editor of "Radiology" and one of the best known radiologists in the country, has been selected as part-time head of the Department of Radiology of the Charity Hospital, New Orleans. The Board of Administrators at the hospital is to be congratulated on the selection of a man known nationally for his researches, studies and writings in his specialty.

GENERAL HOSPITAL TO BE FORMED AT LOUISIANA STATE UNIVERSITY

The Surgeon General at Washington has requested Dr. B. I. Burns, Dean of the School of Medicine, Louisiana State University, to organize a military general hospital. Dr. Urban Maes, head of the Department of Surgery, will organize this hospital unit.

MILAM SUPERINTENDENT STATE HOSPITAL AT MONROE

Mr. J. E. Snee, Director of the Department of Institutions, has announced the appointment of Dr. D. T. Milam, of Monroe, as Superintendent of the E. A. Conway Charity Hospital. For the present, Dr. Milam will be honorary superintendent until the hospital is opened, expecting this event to take place in about six or eight months. Dr. Milam, a graduate of Tulane in 1922, is President of the Ouachita Parish Medical Society, Secretary of the Louisiana State Urological Society and is Regimental Surgeon of the 156th Infantry. His appointment should receive universal approbation.

AID TO BRITISH

Dr. Joseph Felsen, one of the Advisory Chairmen of the Medical and Surgical Supply Committee writes that the following supplies are needed by British units: Instruments and sterilizers; bandages and adhesive; drugs, including local antiseptics, cardiac and circulatory stimulants, sedatives and narcotics, sulfanilamide group, vitamin concentrates, iron preparations, drugs for subcutaneous or intravenous use, anti-diarrheal drugs, analgesics, antipyretics, cathartics, and food concentrates.

MATAS MEDAL

The Matas Vascular Surgery Award created by Mr. Mike S. Hart, in memory of his sister Miss Violet Hart, is to be awarded for the third time on November 14, 1940.

Under the terms of the fund created by Mr. Hart, the fund was to be administered by the Board of Administrators of the Tulane Educational Fund. It was Mr. Hart's request that a Committee of Award was to nominate the "North American Surgeon who has contributed outstanding work in Vascular Surgery." The Committee of Award selected by the family "shall be composed of three Surgeons, and the Surgeon occupying the Chair of Surgery in the School of Medicine, Tulane University." The family selected the Committee of which Dr. Emile Bloch, was Chairman, Dr. Lucian H. Landry, Dr. Isidore Cohn, and Dr. Alton Ochsner, the occupant of the Chair of Surgery, at Tulane University.

The first award was made on January 23, 1934 and Dr. Mont Reid, Professor of Surgery at the University of Cincinnati, was the recipient.

In making a selection of the recipient of the first award, the Committee considered not only the outstanding work on aneurysms which Dr. Reid had made, but they particularly wished to pay tribute to the outstanding work which he, in collaboration with Dr. Louis Herrmann, had done in their efforts to develop collateral circulation by means of passive vascular exercise.

Aside from Dr. Reid's original work he symbolized a liaison between the present and the past, the living bond of friendship between Dr. Matas, and his own contemporary the late Dr. William S. Halsted, who was Dr. Reid's teacher, chief, and friend. The Committee could not help taking cognizance of, and the opportunity to perpetuate as a memorial the relationship which existed between the two great pioneers in vascular surgery in the United States, Rudolph Matas and William S. Halsted.

The second award was made to Dr. Reynaldo dos Santos, of Lisbon, Portugal, in 1937.

In considering an available candidate for the award, the Committee with the approval and counsel of Dr. Matas, took cognizance of the epoch making contribution of the Portuguese School of Vascular Surgery, notably the work of dos Santos, Moniz, Carvalbo, and their associates. The committee further took cognizance of the epoch-making achievement of dos Santos, visualization of the abdominal aorta and the application of his method for visceral radiography. The Committee felt that this feat had opened up new fields to those interested in differential diagnosis of abdominal disease; therefore, the rules of the fund were suspended and the honor was conferred upon Dr. Reynaldo dos Santos.

In his citation of dos Santos, Dr. Matas stated: "dos Santos, is not only the father of aortography and of a new radio vascular method of visualizing the abdominal organs which he has brought to light, but he has expanded the use of aortography in its relations to the early diagnosis of infections of bone and still more by revealing the vascular structure and architecture of bone tumors in which the type of vascularity is of great importance in differentiating between the benign and the malignant growths. Perhaps even more striking are his radiograms of the arteries of the extremities in their relation to embolic or thrombotic obstruction, senile and pre-senile arteriosclerosis and especially aneurysms in which he has been a pioneer.

"We deem it a duty and an honor to confer upon him the Violet Hart Medal as the best token of our appreciation and admiration for his merit, and also, of our respect for his distinguished colleagues and associates of the great Portuguese school which he so worthily represents."

This, the third award of the Matas Vascular Surgery Medal, is made to Dr. Daniel Collier Elkin, of Atlanta, Georgia, the Joseph Brown Whitehead Professor of Surgery of Emory University in Atlanta. Dr. Elkin is a native of Kentucky and a Graduate of Yale University. His medical education was obtained at Emory University in Atlanta, from which he graduated in 1920. His surgical training was obtained at Peter Bent Brigham Hospital, in Boston, where he served successively as a Surgical House Officer, Assistant Resident Surgeon, and Resident Surgeon.

Dr. Elkin had the great privilege to serve under and be inspired by the late Harvey Cushing, dean of brain surgeons of the world.

In 1924, he returned to Atlanta and became connected with Emory University, where he taught anatomy, surgical pathology, and surgery until 1929, when he was made Professor of Surgery and Chief Surgeon to the Emory University Hospitals.

In 1939, the Whitehead Foundation endowed the Chair of Surgery to which he was appointed, and he now holds the title of Joseph Brown Whitehead Professor of Surgery. Dr. Elkin is a member of the American College of Surgeons, Southern Surgical Association, American Association for Thoracic Surgeons, Society of Clinical Surgery, and the American Surgical Association.

Since 1924, Dr. Elkin has published many papers on vascular surgery. His experience in the treatment of aneurysms and wounds of the heart has been unusually large.

Interest in diagnosis and treatment of wounds of the heart has stimulated his associates to such an extent that they are ever on the alert for these cases; consequently many patients are seen, diagnosed early and promptly treated. In 1939 he reported 22 heart wounds operated, with recovery of 50 per cent of the patients.

His most notable contribution has been his work on diagnosis and treatment of wounds of the heart. A recent notable achievement has been the successful treatment of an aneurysm of the abdominal aorta by ligation.

There are probably between 30 and 40 recorded cases in which the abdominal aorta has been ligated, of these not more than 10 or 12 in which the ligation has been done for an aneurysm of the aorta itself. The first successful ligation and cure of an aneurysm of the aorta by ligation was by Rudolph Matas, in whose honor the medal was created. Recently Dr. Bigger, of Richmond, Virginia, recorded the cure of an abdominal aortic aneurysm by the Matas aneurysmorrhaphy method.

Dr. Elkin has recently reported an abdominal aortic aneurysm operated by him in which he used cotton tape ligatures such as Dr. Matas used in his case in 1923. His patient is relieved of all symptoms and has returned to his active duties.

Dr. Elkin's work has commanded the attention, admiration, and respect of the surgical world.

In making the nomination for the award, the Committee salutes a Southern gentleman, a surgeon of note, a teacher worthy of his opportunity and a modest, unassuming student.

The Committee salutes Dr. Elkin.

We congratulate Dr. Elkin, not only on having been chosen because of his own merit to receive this reward, but because he is fortunate in being able to receive it directly from the hands of the master surgeon, the pioneer in modern vascular surgery, Rudolph Matas.

Isidore Cohn.

CIVIL SERVICE OPENINGS

The Civil Service Commission announces that enough applications have been received to meet the prospective need for temporary and part-time civilian medical officers in connection with the Army expansion. Receipt of applications closed Monday, October 14.

The Commission calls attention to the fact, however, that there is an urgent need for medical officers and senior and associate medical officers to fill permanent positions in other agencies. Applications will be recevied until further notice. The positions pay from $3,200 to $4,600 a year. Fourteen specialized branches of medicine are included.

Full information and application forms for these examinations may be obtained at the office of the Secretary, Board of U. S. Civil Service Examiners at any first- or second-class post office, or from the U. S. Civil Service Commission, Washington, D. C., or from any of the Commissioner's district offices.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Bureau of Epidemiology of the Louisiana State Board of Health for the week ending September 21 showed the following reportable diseases occurring in numbers greater than ten: 177 cases of syphilis, 49 of pulmonary tuberculosis, 30 of cancer, 29 of pneumonia, and 23 of typhoid fever. The typhoid fever patients were scattered throughout the state with not more than three cases occurring in any one parish, except in Pointe Coupee which had eight instances. It is regrettable that eight cases of poliomyelitis were reported, four from Caddo and the others respectively from Bienville, Calcasieu, DeSoto and Ouachita. During the same period a case of typhus fever was reported in each of these parishes: Iberia, Lafayette, Lafourche, Orleans, St. Martin, and Vermilion. For the thirty-ninth week of the year closing September 28, syphilis again led all reportable diseases with 129 instances. There were listed also 49 cases of pulmonary tuberculosis, 30 of cancer, 28 of gonorrhea, 24 of typhoid fever, 22 of malaria, 20 of pneumonia, and 11 of trachoma. This week again was characterized by the occurrence of several cases of poliomyelitis, Bienville, Franklin, Morehouse, and Red River each reporting one instance; Iberia and Orleans each reported two cases and Caddo four. Again this week typhoid fever was scattered throughout the state; no parish reported more than three cases except Lafayette with six. For the week which ended October 5, there were listed 160 cases of syphilis, 30 of cancer for the third consecutive week, 31 of pulmonary tuberculosis, 23 of pneumonia, 17 of gonorrhea, 11 of malaria, and 10 of typhoid fever. Four cases of poliomyelitis were listed this week, one each from Avoyelles, Claiborne, Sabine and Webster parishes. There were noted also six cases of typhus fever scattered throughout the state, while of the 10 reported cases of typhoid fever no more than two came from any one parish. During the forty-first week of the year, ending October 12, there were reported 138 cases of syphilis, 36 of gonorrhea, 27 each of cancer, pneumonia, and pulmonary tuberculosis, and 19 of malaria. This week the typhoid fever cases were reduced to eight with only one parish reporting more than one case, and in this instance but two. There were three cases of poliomyelitis and seven of typhus fever.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, reported 109 deaths in the City of New Orleans for the week ending September 14 as contrasted with 118 the previous week. These deaths were divided racially 61 white and 48 colored; nine of the deaths were in children under one year of age. A very sharp increase in the number of deaths occurred in the week of September 21. Of the 148 deaths, .90 were white and 58 negro; 19 were in children under one year of age. The marked increase in the number of deaths for the week of September 21 was followed by a sharp fall during the next week which closed September 28, there being 112 citizens who died in this particular week. The number of deaths was divided almost equally between the two races and there were 10 infant deaths. The death incidence in New Orleans for the past four weeks has fluctuated rather markedly. For the week which closed October 5, the deaths went up sharply, 153 people expiring this week. There was little change in the negro death rate, but the number of white deaths was thirty-six more than the previous week. In the infant death column appeared 13 deaths, seven white and six negro babies.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

NEWS OF LOCAL GROUPS

Orleans Parish

The Woman's Auxiliary to the Orleans Parish Medical Society held its first meeting and reception Wednesday, October 9, at 3:00 p. m. at the Orleans Club. The meeting was called to order promptly by our president, Mrs. Aynaud Hébert, the ladies, in their new fall gayness being eager to hear the names of the members appointed to the committee for nominating the president-elect. Committee chairmen gave interesting reports. New members of the auxiliary were introduced and cordially received.

Following the usual order of business, Dr. Mildred Christian, Assistant Professor of English at Newcomb College, reviewed "How Green Is My Valley."

The tea table was lovely with a centerpiece of chrysanthemums; Mrs. Andrew Friedrichs and Mrs. Jonas W. Rosenthal presided. Among the gracious hostesses for the afternoon were Mesdames Charles Wood, Solon Wilson, Charles Williams, Charles Wheeler, J. O. Weilbaecher, Jr., Arthur Weil, William Wagner, Fred Vaughan, Curtis Tyrone, R. W. Todd, I. Tedesco, J. G. Stulb, L. H. Strug, Wilbur Smith, J. L. Wilson, R. M. Willoughby, M. C. Wilensky, H. L. Weinberger, J. S. Webb, T. J. Walshe, E. B. Vickery, Randolph Unsworth, W. G. Troescher, N. F. Thiberge, J. W. Tedder, Jack Strange, John Smythe, Lee Schlesinger.

Mrs. Donovan C. Browne,
Publicity Chairman.

SECOND DISTRICT

The regular monthly meeting of the Auxiliary to the Second District Medical Society was held October 15, at 2:30 p. m. at the home of Mrs. J. Earle Clayton, of Norco.

Members of the auxiliary have been busy during the summer months making Red Cross refugee garments and layettes, and collecting scrap books for distribution to the hospitals.

Mrs. P. A. Donaldson,
Publicity Chairman.

Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Press and Publicity Chairman.

BOOK REVIEWS

Virus and Rickettsial Diseases: A symposium held at the Harvard School of Public Health, June, 1939. Cambridge, Harvard University Press, 1940. Pp. 907. Price $6.50.

In June, 1939 a symposium on the virus and rickettsial diseases was held at Harvard School of Public Health. The present volume contains the various papers that were presented at the symposium. Without exception the authors are men very well qualified to discuss the particular subjects assigned to them. There can be no question as to the authenticity of the material and the firsthand knowledge of the writers concerning those things which they presented last year.

Space will not permit a review of each of the papers. Suffice it to say that as in any symposium there are naturally some variations in the presentations, but without in any way drawing distinctions it can be written that all of these are good but a few of the presentations are a bit better.

A man interested in virus and rickettsial diseases will need this compilation as a reference book. To the man who is unfamiliar with the virus and rickettsial diseases the book will be of tremendous assistance because it not only deals with the specific diseases but also it discusses the general problems that have to do with the virus and with the rickettsial disorders. The whole work is a credit to the Harvard School of Public Health.

J. H. Musser, M. D.

Gynecologic Operations and Their Topographic-anatomic Fundamentals: By Heinrich Martius. Chicago, S. B. Debour, 1939. Pp. 486. Price $10.00.

This is a most complete book on the fundamentals of the anatomy of gynecologic operations. It does not deal with pre- or postoperative care.

The contents are divided into six chapters each fully illustrated. Incidentally the drawings are well done, being excellently descriptive and the note under each illustration well narrated.

The operative methods do not differ from our own except for the chapter on curettage of the uterus where the use of the laminaria stem is depicted; however the translator has a footnote wherever a difference occurs.

This volume should be especially useful for the resident who chooses this specialty and a boon for the specialist who wishes to refer quickly to some procedure.

The chapter on vesicovaginal fistula deserves special praise for it brings forth the essentials in the repair of these defects. Having done a lot of work in this field, I was surprised to find that my clinical work so closely coincides with the author and I would have been saved the effort of practical experience had I chanced upon this volume previous to my efforts.

To continue on would only further whet the appetite for the perusal of this book. May I, however, warn the novice that pre- and postoperative care is sometimes more important than the operation.

M. Lyon Stadiem, M. D.

Anatomy and Physiology: By Frederic T. Jung, B. S., Ph. D., M. D.; Anna Ruth Benjamin, B. A., M. D., and Elizabeth Carpenter Earle, B. A., R. N. Philadelphia, F. A. Davis Company, 1939. Pp. 637. Price $3.50.

This is a better than average textbook on anatomy and physiology designed particularly for use in teaching nurses. The systems of the body are discussed separately from the anatomic and the physiologic point of view and the authors have successfully steered a middle course between brevity and fullness. Each chapter is preceded by a preview and is broken down into integral topics. Each topic has its own preview and many correlative applications are given in connection with the discussions of the topics. At the end of each chapter there are suggestions for laboratory practice and study projects. The text is well printed on a two column page and is particularly well illustrated. Deserving special comment are the striking photographs of a living model showing certain muscles which are more often involved in nursing practices.

In attempting to simplify the presentation of the material, it seems to the reviewer that the authors have in some instances broken up the material into units which are too small, since, in these instances, the preview and summary occupy almost as much space as the descriptive material presented. The text would be improved by cross references as, for example, in the case of the electrocardiogram which is referred to on pages 66, 191, 203 and 289 but is not described until page 293.

H. S. Mayerson, Ph. D.

Electrocardiographic Patterns: By Arlie R. Barnes, M. D. Baltimore, Charles C. Thomas, 1940. Pp. 197. Price $5.00.

This book passes over the usual consideration of arrhythmias and emphasizes only the electrocardiographic patterns indicative of myocardial disease. The changes of importance in diagnosis are systematically covered with stress given, as it should be, to the effects of coronary disease and its resultants, particularly myocardial infarction. Acute and chronic ventricular strain, both left and right sided, is discussed. The effects on the electrocardiogram of such conditions as pericarditis, drugs, metabolic disorders, and infections, are clearly outlined. In each instance evidence from the literature is correlated with the author's own experiences and a brief summary made of the important findings. Descriptive cases add much to the discussion, and the illustrative tracings are well chosen to demonstrate clearly the points in question.

Chest leads, including normal standards, are taken up and discussed in detail. Comparison of tracings obtained by the various methods of lead connections is given in the final chapter but throughout the text the author uses the old scheme which gives curves upside down to the present standards. This is regrettable since standardization of chest leads by a committee of the American Heart Association has completely outmoded the tracings as represented throughout the text. This feature of the book will cause much confusion, particularly to those not well acquainted with the fundamentals of electrocardiography. However, the book supplies a long felt need and represents a valuable analysis and compilation of our knowledge in a most important field of electrocardiography.

WM. A. SODEMAN, M. D.

Life and Letters of F. H. Garrison: By S. R. Kagan, M. D. Boston, Medico-historical Press, 1938. Pp. 287; por. Price $3.00.

Fielding Hudson Garrison (1870-1935) was a great medical historian and bibliographer. His "Introduction to the History of Medicine" has remained a standard reference work for more than a quarter of a century. It is not only a mine of historical information, but a beautifully written book laden with many references which give indication of Garrison's broad culture, background, and his love of music as well as his great store of historical information.

Kagan's life of Garrison is a disappointment, being written in a slipshod fashion. It not only fails to leave with one a clear picture of Garrison, but totally lacks any attempt to study the factors that influenced the development of Garrison's attitudes and ideals. One can only hope that a more sympathetic, understanding and thorough study of Garrison will some day appear. Garrison could and should be the subject of a biography of the quality of Cushing's "Osler."

The letters of Garrison, however, rescue the book, and make it worth the price of purchase. In a day when letter writing as an art had largely declined, and unaided by the convenience of a secretary, Garrison wrote numerous and exquisite letters. He thinks freely and clearly on paper. His thoughts roam the universe and many passages of great beauty as well as innumerable items of information cram full the pages. Garrison's compare favorably with the best in American letters; they have many of the qualities and remind one of those of William James and Henry Adams. The book is recommended with the suggestion that the reader skip the "Life" and read the "Letters" of Garrison in order to obtain not only the pleasure of reading a group of splendid letters, but in order to secure a picture of Garrison as he so ably reveals himself in his letters.

B. BERNARD WEINSTEIN, M. D.

The Surgery of Injury and Plastic Repair: By Samuel Foman, Ph. D., M. D. Baltimore, The Williams and Wilkins Co., 1939. Pp. 1409. Price $15.00.

This comprehensive volume is encyclopedic in its development. Specific consideration of essentially all phases of plastic surgery is accomplished. The entire book is profusely illustrated and is an excellent source of reference for one seeking information relative to a specific phase of plastic surgery. Due to the comprehensive inclusion of detailed procedures, the descriptions of technic, and the impossibility of assuming evaluations of technic, the book will be of considerably more interest to the specialist than to the student, the general practitioner, or general surgeon.

NEAL OWENS, M. D.

The Diagnosis and Treatment of Pulmonary Tuberculosis: By John B. Hawes, 2nd, M. D., and Moses J. Stone, M. D. Philadelphia, Lea and Febiger, 1940. Pp. 260. Price $2.75.

The second edition of this useful little book has been brought up to the minute by the junior author. The elimination of all "frills" which marked the original work has been carried further. Condensation of many of the chapters has made it possible to add more illustrations, new material on collapse therapy, and new chapters on allergy-immunity and mental aspects of tuberculosis without increasing the bulk or the expense of the book. The bibliographic material appended to each chapter is excellent.

This book is highly to be recommended to physicians and medical students as the most up-to-date and compact treatise obtainable on the subject of tuberculosis.

JULIUS LANE WILSON, M. D.

PUBLICATIONS RECEIVED

Harvard University Press, Cambridge, Mass.: Human Nature in the Light of Psychopathology, by Kurt Goldstein.

Rockefeller Foundation, New York City: International Health Division Annual Report, 1939.

W. B. Saunders Company, Philadelphia: Office Urology, by P. S. Pelouze, M. D.

The Williams and Wilkins Company, Baltimore: Leprosy, by Sir Leonard Rogers, K.C.S.I., C.I.E., M.D., F.R.C.P., F.R.C.S., F.R.S., I.M.S. (Retired), and Ernest Muir, C.I.E., M.D., F.R.C.S. Edinburgh. Clinical Urology, by Oswald Swinney Lowsley, A.B., M.D., F.A.C.S., and Thomas Joseph Kirwin, M.A., M.S., M.D., F.A.C.S. (2 v.)

The Year Book Publishers, Inc., Chicago: Obstetrics in General Practice, by J. P. Greenhill, B.S., M.D., F.A.C.S. Vitamin Therapy in General Practice, by Edgar S. Gordon, M.D., M.A., and Elmer L. Sevringhaus, M.D., F.A.C.P. The 1940 Year Book of Public Health, edited by J. C. Geiger, M.D., Dr. P.H.

Lea & Febiger, Philadelphia: The Treatment of Diabetes Mellitus, by Elliott P. Joslin, A.M., M.D., Sc.D., Howard F. Root, M.D., Priscilla White, M.D., and Alexander Marble, M.D. Congenital Syphilis, by Charles C. Dennie, B.S., M.D., and Sidney F. Pakula, B.S., M.D.

New Orleans Medical
and
Surgical Journal

Vol. 93 DECEMBER, 1940 No. 6

A PLEA FOR WIDER EMPLOYMENT OF THE ROENTGEN RAYS IN EXAMINATION OF THE LUNGS*

B. R. KIRKLIN, M. D.†
Rochester, Minnesota

Employment of the roentgen rays for examination of the lungs was one of their earliest applications to clinical medicine, and the progress of the method either was witnessed by, or is a familiar story to, most physicians. Today this test is demanded almost as a routine in hospitals and clinics everywhere, but in practice outside such institutions the method is used sparingly, far too sparingly in my opinion. It is true that in a majority of cases pulmonary affections can be identified clinically, and I have deep respect for the skill with which such diagnoses often are made. In too many instances, however, the symptoms, signs and ordinary laboratory tests are inadequate to make the differential diagnosis, to disclose complications, to determine the exact site and extent of the lesion, or even to establish or exclude the existence of disease. In such instances roentgenologic examination in competent hands, will seldom fail to give decisive information, and even when the clinical analysis is fairly complete and accurate the roentgenologic investigation usually will furnish valuable additional facts.

Of all the senses that of vision is most comprehensive and most dependable. Seeing is believing and the visual evidence supplied by the roentgenogram is far more convincing than inferences derived from the anamnesis and physical examination. In the normally transradiant lungs anatomic changes, however slight, are depicted in shadows that are almost as capable of diagnostic interpretation as a pathologic specimen. This does not imply that clinical examination should be superseded by the roentgenologic method, for symptoms and physical signs are primary indexes that can rarely be omitted from consideration, but they vary in diagnostic value so widely among diseases of the lungs, among different stages of disease and among individual patients that in most cases supplementary information is requisite for confident and complete diagnosis. Usually roentgenograms will furnish this information.

CLASSIFICATION OF PATIENTS

On the basis of clinical manifestations patients may be classified in four groups: (1) A group in which symptoms and signs are trivial, vague and inconclusive with regard to the existence of pulmonary disease. (2) A group in which the clinical manifestations are attributable to disease of organs other than the lungs and thus are often highly deceptive. (3) A group in which the clinical data are definitely indicative of a pulmonary affection but are indecisive as to its nature. (4) A group in which the anamnesis and physical signs point unerringly to a specific diagnosis, but often fail to disclose facts that are of practical significance. In all of these groups roentgenologic examination is either indispensable or desirable.

In the first group of patients, those who have few or no symptoms and none that are diagnostic, almost any of the multitude of pulmonary diseases may occasionally be represented, especially those in an early stage. Most conspicuous and common among them is early tuberculosis, for in a large proportion of cases the clinical examination is indecisive, either as to the existence of a lesion or as to its character. Here the roentgenologic examination offers extraordinarily valuable service.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the Section on Roentgenology, The Mayo Clinic, Rochester, Minn.

Sampson and Brown[1] have said: "Today we have progressed to the stage where we call no man sound pulmonically until his stereoscopic roentgenograms have been found to be normal, and consider the roentgenologic study as much a part of the routine examination of the lungs as the stethoscopic, or, indeed, as the examination of the sputum." Again they have said: "The time is now upon us . . . . . when it will no longer do for us to wait for the development of clinical pulmonary tuberculosis before attempting to control it. We must discover which individuals have definite pulmonary lesions and endeavor so to direct their lives that the disease, undiscoverable by physical signs, to be revealed only by roentgenology, may make no further advances."

X-RAY FINDINGS

Roentgenologic manifestations of early tuberculosis in adults are of two principal varieties. The first and most common variety is a delicate conical or fan-shaped shadow resembling a caterpillar's web, in an upper lobe opposite the first or second interspace wih its apex toward the hilum and its base at the periphery of the lung. In the second variety the lesions have the same situation as in the first, but are irregular in shape and vary in diameter from 1 or 2 mm. to several centimeters. Their shadows may be discrete, or closely aggregated and are relatively faint, especially at their periphery. In both varieties the bronchovascular trunk leading to the affected region is accentuated.

Clinical recognition of hematogenous miliary tuberculosis of the lungs arising from a small focus in the lungs or elsewhere is scarcely possible. Roentgenologically the tubercles appear as myriad minute flecks scattered over both lungs and resembling the cut surface of a fine grained sponge. The picture is almost but not quite pathognomonic, for it must be distinguished from that of pneumoconiosis and of miliary metastasis.

Primary tuberculosis of children often gives rise to pronounced mediastinal or hilar lymphadenopathy as revealed by a widened median shadow or accentuation of the hilar shadow on the affected side. The Ghon focus in the parenchyma may be visible as a round or irregularly shaped shadow in any of the lobes, especially in their lower portion or in the hilar region. As a rule its appearance resembles that of coarsely ground glass, and this in association with the obvious lymphadenopathy serves to distinguish the lesion from bronchopneumonia or lobar pneumonia, although occasionally roentgenologic distinction is difficult.

During recent years the discovery and diagnosis of pneumoconiosis in its numerous varieties have become increasingly important. Not merely coal miners, quarrymen and cement workers, but all those engaged in dusty occupations, or who live in sandy regions in which dust storms occur are subject to this affection. Symptoms are absent or few in its early stages but the roentgenogram will reveal the deposits as a shower of discrete flecks in the lungs somewhat like those depicting miliary tubercles but slightly larger, denser, more discrete and less numerous in the apexes and bases. As the deposits increase and complications develop, the shadows become larger and more or less confluent, especially in the hilar region.

CLINICAL SIGNS

Occasionally the clinical manifestations are emphatic, but strongly indicative of disease elsewhere than in the lungs. Among such examples is spontaneous pneumothorax. The sudden, keen intrathoracic pain, the dyspnea and cyanosis might easily lead the clinician to suspect that their origin was in the heart rather than the lungs. But the roentgenologic signs are definite and diagnostic. The affected region, whether part or all of a lobe or an entire lung, is brightly translucent and devoid of normal bronchovascular markings. In addition, if the pneumothorax is extensive, the heart and mediastinal structures are displaced toward the opposite side. Congenital cyst of the lung has a superficial resemblance to pneumothorax but distinction between the two usually can be made.

Not infrequently a small bronchiogenic carcinoma of the lung produces metastasis to the brain, and the symptoms are solely or predominantly cerebral.

In the third group, the patients whose clinical manifestations are definitely pulmonary but not specifically diagnostic, the rarer diseases are found. Included among such affections are congenital cyst, bronchiogenic carcinoma, Boeck's sarcoid, mycosis and many others.

CYSTS

Congenital cysts of the lung are indeed rare, for fewer than 200 cases have been reported, but doubtless many cases are overlooked and the affection requires more consideration than it has received. The cysts may be single or multiple, small or large, and situated in any part of either lung or in both lungs. They may contain air or fluid or both. Cysts filled with air only appear as transradiant areas in which no pulmonary markings can be seen, and the thin wall of the cyst often is depicted as a delicate linear shadow. In shape the cysts may be rounded or may conform in part to the boundary of a lobe, or, if multiple and closely packed, may be polyhedral. Cysts filled with fluid cast dense shadows that can hardly be distinguished from those of tumors. When the cysts contain both fluid and air, the fluid level surmounted by an air-filled dome is obvious, but distinction from other such cavities is necessary.

BOECK'S SARCOID

Boeck's sarcoid is an uncommon disease, the precise cause of which is not known. Pathologically it is characterized by the formation of nodules in the skin, thickening of the trabeculae together with areas of rarefaction in some bones, particularly the phalanges, and, in some cases, the development of fibrotic strands and nodules in the lungs. In typical cases roentgenograms of the lungs disclose dense bilateral linear shadows in the middle portion or lower half of the lungs, extending from the hilum well out toward the periphery. Interspersed among the streaky shadows are round dense shadows of miliary nodules, of various sizes. The largest is about 1 cm. in diameter.

CARCINOMA

Primary carcinoma of the lung now is considered invariably to be bronchiogenic in origin. Early carcinoma of a principal bronchus is characterized roentgenologically by a unilateral, hemispherical, triangular, or ill-defined shadow centered at the hilum. As a result of the usual obstruction the tributary parenchyma becomes atelectatic and correspondingly dense. Often atelectasis is the sole early manifestation, the growth being as yet too small to cast a detectable shadow. Carcinoma arising farther out in the bronchial tree begins as a single nodule, most often in an upper lobe. The growth is more or less spherical and its shadow is neither very dense nor sharply limited. As primary carcinoma in either situation progresses, complications occur, such as pleural effusion, metastasis and pyogenic infection, and the roentgenologic picture becomes more complex.

In the fourth, and probably largest, group of cases, those in which the clinical opinion is not open to question, roentgenologic investigation might seem to be ultrascientific and superfluous. But, however skillfully clinical examination may be carried out, it will seldom reveal the precise extent and site of pulmonary disease, or definitely establish or exclude the presence of all complicating factors. Practically all typical cases of common diseases, such as bronchiectasis, tuberculosis, pneumonia, and so forth, fall in this group.

On roentgenologic examination in patients with bronchiectasis the cylindrical, saccular or spherical dilatations of the bronchi are usually evident. When the sacs are multiple, grouped and filled with fluid, their dense shadows often resemble those of a bunch of grapes. When the sacs are empty, the rarefied shadows depicting them are equally characteristic. If peribronchiectatic inflammation exists, the shadow of the inflammatory zone will be apparent. Sometimes, also, the roentgenogram discloses a foreign body, the presence of which was not suspected.

When it is definitely known that a patient has tuberculosis, the activity of his lesion is an important element in the case. Clinical indexes as to this factor, especially when the lesion is minimal, are often indefinite and require roentgenologic aid. The shadow of an active focus is hazy and ill-defined; that of a healed lesion is dense and sharply margined.

In moderately advanced cases of tuberculosis the prognosis depends largely on the degree of reactive fibrosis, and this can be determined with the roentgen rays.

Thus far only chronic diseases have been considered. In most cases of acute disease encountered at the office or in homes roentgenologic investigation seems to be unnecessary or impracticable, for the diagnosis is likely to be obvious or the patient is too ill to be sent out for the examination. But even in such cases, when the patient has pneumonia, localized pneumonitis, atelectasis or infarct, roentgenologic examination usually is well worth while.

Lobar pneumonia is depicted typically at the very beginning as an enlargement of the hilar shadow together with accentuation of the bronchovascular markings on that side. Progressively the shadow extends further out into the lung, usually into an upper or middle lobe, becomes dense and more or less homogeneous, and at least part of its margin coincides with the border of the lobe. When resolution of the lesion is beginning, its shadow becomes mottled with clear areas and its periphery recedes. Clearing continues until all shadows disappear.

Bronchopneumonia at its onset is characterized by enlargement of the hilar shadow like that of early lobar pneumonia. Later multiple discrete or partly fused shadows, variable in size, shape and density, and clustered about a bronchus appear further out in the parenchyma. Bronchopneumonia most often attacks lower lobes, does not respect lobar borders in its invasion and is often bilateral; all of these features are marks of distinction from the lobar variety.

When the history indicates that a foreign body has been aspirated, roentgenologic examination is not likely to be omitted, but sometimes, as in children, such aspiration is not known to have occurred. Metallic and other dense bodies can readily be discerned with the roentgen rays, but non-opaque bodies are not directly demonstrable. However, both varieties are likely to cause some degree of bronchial obstruction. If inspiration only is obstructed, the tributary segment of lung becomes atelectatic and dense. If the foreign body acts as a valve and permits inspiration but not expiration, the segment becomes emphysematous and brightly transradiant.

SUMMARY

Illustrations of pulmonary diseases and their roentgenologic characteristics could be multiplied indefinitely, for there are few patients in whom the method fails to be of service. But there is no need to lengthen a story that is already familiar. In the interest both of clinician and patient I have hoped merely to make those engaged in general practice more keenly conscious of the roentgen rays and their practical value. It seems to me that we may look forward confidently to a day not far off, when an efficient roentgenologic examination of the lungs will be applied as a routine in the diagnostic study of virtually all patients.

REFERENCE

1. Sampson, H. L., and Brown, Lawrason: Correlation of clinical and roentgenological observations in pulmonary tuberculosis, Radiology, 22:1, 1935.

DISCUSSION

Dr. I. L. Robbins (New Orleans): I would like to ask that you tell us briefly of the several occasions you remarked about when the x-ray man was able to diagnose the conditions of activity in the lungs. Tell us what are the finger prints of activity as far as the x-ray man is concerned in pulmonary disease. Also tell us if the x-ray man arrived at the diagnosis of pulmonary lesions by shadows.

Do you claim that there is anything distinctly different or unique as far as shadows of tuberculosis are concerned, pulmonary, as contrasted to other pulmonic lesions or influenced by the site of lesions and various other factors in consideration, especially the history of the case and etiologic findings?

Dr. P. R. Gilmer (Shreveport): Dr. Kirklin has brought us a resumé of the conditions and findings which he has encountered, which were presented beautifully and all of us, I am sure, have gotten a lot out of his paper.

There is one case he showed which I do not pretend to take issue with as to diagnosis, but will ask him to elaborate on that case. It was the third case, where a solitary large shadow was seen in the lung, with complete absence of all clinical and physical signs. I would like to ask whether a stereoscopic examination was made, and whether or not that might not have been fibrous plaque left from previous pleurisy with fluid formation.

Dr. Kirklin (In conclusion): There is no doubt in my mind that in a high percentage of cases the competent roentgenologist can determine whether or not there is activity in the tuberculous lesion of the lungs. Clinical data are sometimes helpful in interpreting x-ray shadows in the lungs but they do not change the character of these shadows or the type of pathology that produces typical shadows. If the roentgenologist is familiar with these various types of pathology he should have no difficulty in making the correct interpretation. It is our practice to make stereoscopic films of the chest of practically every patient who comes for routine general examination.

WARREN STONE*

JOSEPH V. SCHLOSSER, B. S.†

Warren Stone was born at St. Albans, Vermont, February 3, 1808, the youngest of three children. His father, Peter Stone, died before he was born, and his mother, Jerusha Snow, from whom he inherited self-reliance and a remarkable physique, was forced to supplement the deficiencies of the scanty schooling of the day. His education conducted in part by tutors, and in part by his mother was entirely inadequate, which served to hamper him in later life. He left his rural home to become a private pupil of the eminent physician and surgeon of Keene, New Hampshire, Dr. Amos Twitchell, under whom he received the greater part of his extensive knowledge. He then attended the Medical School of Pittsfield, Massachusetts, graduating with the degree, Doctor of Medicine, in 1831. He began his practice in Troy, New York, and while there diagnosed the first case of cholera to enter the U. S. among immigrants fleeing to Troy from Quebec and Montreal. It was this experience that served him in good stead in later epidemics. Opportunities for practice being few in Troy, and looking to the South for his future home, he embarked for New Orleans on the brig "Amelia", in October of the same year. During the voyage a severe storm arose, necessitating the hatches being fastened down for several days, crowding 108 passengers in the stifling space between decks. On the third day there was a cry that a man was dead and Stone investigated and found 25 of the passengers in the second stage of cholera. The presence of disease and the poor condition of the ship following the storm necessitated its beaching on Folly Island off the coast of Charleston, where a rigid quarantine was set up. Physicians and supplies were sent to the island from the city of Charleston, but the physicians soon were broken by their exertions and requested relief from duty. Dr. Thomas Hunt was then appointed to take sole charge of the work. Dr. Stone remained on the island administering to the sick. There he and Hunt formed a friendship that was one of the most fortunate incidents of Stone's life, and one that was to lead to a momentous undertaking. While still on the island he became ill of cholera and was attended by Dr. Hunt. Following his illness, another vessel was chartered, the ill-fated "Amelia" having been burned, and he landed in New Orleans in December, 1833, at a time when concomitant epidemics of yellow fever and cholera were raging. He was sick and had insufficient clothing to protect him from the cold, and had but a single picayune in his pocket, which he later humorously said he preserved for the sake of a nucleus of his fortunes.

Because of the epidemic which carried off 6,000 people in a population of 50,000 and the great need for medical help, his proffered services were accepted by Dr. Cenas, who secured for him an appointment in a very subordinate position in the new Charity Hospital which had just been built. A few months later his good friend Hunt moved to New Orleans, and in August, 1833 became house surgeon at Charity Hospital. Hunt, in a letter to the Board of Administrators, warmly commended a promotion for Stone. A short time following the recommendation Hunt resigned to follow out his plans of founding a medical school, and Dr. John H. Harrison was elected in his place as house surgeon with Warren Stone as assistant house surgeon. Stone served in this capacity from 1833 to 1835, when upon the retirement of Dr. Harrison he became house surgeon, serving in this capacity from 1835 to 1839. At the expiration of his term he served as visiting surgeon until his retirement in 1872, in all serving the hospital 39 years.

---

*Read before the Orleans Parish Medical Society, July 8, 1940.

†From the History of Medicine Society Tulane University of Louisiana, School of Medicine.

Medical education was at a very low ebb at this time. Colleges were a product of private enterprise, organized as stock companies and composed of medical graduates depending solely upon the number of medical students and the amount of their fees. The Medical College of Louisiana, the foundation of the present Tulane University was just such a stock company, the product of the imagination, enthusiasm, and energy of Dr. Hunt. Dr. Stone was intimately associated with the college from its inception in 1834, serving the first few years as demonstrator of anatomy, lecturer in anatomy, and finally was elected to the professorship in 1837, on the petition of the admiring classes. He also served in the position of lecturer in surgery and in 1839 was appointed Professor of Surgery upon the resignation of Dr. Luzenberg, which post he held until his resignation in 1872.

In 1839 at the expiration of his term as house surgeon at Charity Hospital, Dr. Stone in connection with Dr. William E. Kennedy founded the Maison de Santé, one of the earliest private hospitals in America. This later formed the nucleus for the organization of Hotel Dieu. It was here that he lost his eye as a result of an inflammation incurred while treating a patient. It was a source of disfigurement and discomfort to him the rest of his life. Upon the founding of the Hotel Dieu, the Sisters of Charity went to that institution and the Maison de Santé became Stone's Infirmary. It was never a financial success.

Dr. Stone was a man of large physique, his huge frame being surmounted by a massive head and a face of imposing features with thick, bushy eyebrows, a firm mouth, and prominent jaw. Genial and frank though not hilarious, benevolent and charitable to a fault, he never turned a patient from his infirmary for inability to pay. He abhorred pretension of every kind, and was oblivious of fashionable convention of dress. Stone was a remarkably close and accurate observer and possessed a superior knowledge of anatomy, but was not didactic and never hesitated to admit possible error. His memory was unsurpassed and though he read little, he had a wide clinical experience and never forgot what be observed. He used no notes or memoranda, and it is said he could recall patients, even the most transient, describe their symptoms, and even remember the medication they received.

As a surgeon he was conservative, methodical, and industrious, a good anatomist, a keen diagnostician, and prompt though not graceful in execution of surgery when necessary. His resources were unbounded. He never seemed more cool or self-possessed than when suddenly confronted by some surgical emergency. He enjoyed the distinction of introducing the use of surgical anesthesia in New Orleans despite the antagonistic feelings of the profession, both locally and nationally. He conclusively demonstrated its worth by amputating a leg under ether anesthesia. He was the first to cure an aneurysm by compressing the artery, and successfully treated a patient with aneurysm of the vertebral artery by ligation and excision of the sac. He was the first to utilize rib resection to secure drainage in abscess of the liver and empyema. At the outbreak of the Civil War he was appointed Confederate Surgeon-General of the State of Louisiana, and served at the battles of Bull Run and

Shiloh. It was here his conservatism as a surgeon was manifest, saving many a limb that would have been unnecessarily amputated. He was a close friend of Jefferson Davis and his strong backing of the Confederacy caused his imprisonment at Fort Jackson for some weeks. He treated the Federals with the same regard as he had shown his own soldiers and because of his prominence was soon released. Stone acted as attending physician to Gen. Sherman, and when Gen. Grant was thrown from his horse at New Orleans he was called in to attend him.

As a lecturer he was discursive rather than systematic, and he was very apt to be led off the beaten paths by an interesting case. He wrote but little, being deterred by his inadequate early education. Some of his better known contributions are: Treatment of Wounded Arteries; Ligation of Common Iliac Artery; Inflammation; Pulmonary Tuberculosis; Amputation of the Mammae; Ligature of the Femoral Artery; Hernia and Obstruction of the Bowels.

Dr. Stone died at Baton Rouge, December 6, 1872, as the result of Bright's disease and diabetic gangrene, following a long period of illness. As a mark of respect the District Courts were adjourned and the flags of shipping stood at half mast for the funeral.

In the words of Judge Alexander Walker "A great man he truly was—great mentally, morally, and physically."

THE EFFECT OF HIGH TEMPERATURE ON BODY FUNCTIONS*

A SYMPOSIUM

THE REGULATION OF BODY TEMPERATURE

HENRY LAURENS, PH. D.†
NEW ORLEANS

Mammals and birds, so-called warm-blooded animals, possess efficient mechanisms for maintaining a constant body temperature against extreme changes in environmental temperature.[1] The regulation of body temperature is one of the best examples of homeostasis. The powers of adjustment to high and low external temperatures are greatly restricted as one grows older, and the homeostatic mechanisms are less and less able to adapt the organism to temperature variations in the external environment as age progresses in the later decades.[2] The body temperature represents the balance struck between the heat produced by the tissues and that lost to the environment. The heat produced in the body is a by-product of metabolic processes and the amount is far in excess of the usual requirement for keeping the body warm. Nature has provided means in the skin and lungs for the removal of the excess heat and for the maintenance of an optimal internal temperature.[3]

A fundamental requirement is the ability to adapt constantly to the ever changing physical environment, which tends to upset the temperature equilibrium of the body. Under the usual conditions of life these adjustments are so easily accomplished that a normal person is unconscious of the complex physiologic processes at work. Discomfort arises when thermal equilibrium is impossible or when abnormal reactions are involved in the transitional period of adaptation. The ability to adapt varies widely; metabolism, peripheral circulation, and physical and subjective symptoms show great variability in different persons under identical environmental conditions. Sensations of heat or cold are not due to change in internal body temperature but largely to changes in the temperature of the skin.

PHYSIOLOGY

In the brain-stem there are centers that coordinate the multitude of functions involved in heat regulation. When the cen-

---

*Read at the Scientific Meeting of the Orleans Parish Medical Society, July 8, 1940.

†From the Laboratory of Physiology, School of Medicine, Tulane University of Louisiana, New Orleans.

ters are aroused efferent neurons transmit activating impulses from the central nervous system to the various organs of the body controlling heat production and heat loss for the restoration of normal body temperature. When the external temperature rises, the blood vessels of the skin dilate by reflex vasomotor action. More blood flows through the skin, thus raising its temperature and therefore the heat loss. The rise is least in the skin of the forehead and trunk and greatest in the extremities, particularly the feet.[4, 5, 6] If this method of cooling is not sufficient to prevent a rise of body temperature, the sweat glands are thrown into action. In this way thermal equilibrium may be re-established if the external temperature is not too high.

On exposure to cold, a reverse action takes place. The skin vessels constrict and the blood supply is curtailed in order to conserve body heat. If this response fails to prevent the body temperature from falling, there is an increase in metabolism, effected partly by voluntary contraction and partly by stimulation of the adrenals and thyroid.

A rise in temperature causes an increase in circulating blood volume; the blood is diluted by fluid drawn into the circulation from the tissues, chiefly the skin, muscles and liver. Blood is expelled from the spleen. At low temperatures the blood volume is reduced, the blood becoming more concentrated as shown by an increase in the percentage of blood solids. These changes in blood volume are of paramount importance in the regulation of body temperature. The minute volume output of the heart is also increased when the temperature rises, and diminished when it falls.

Heat loss from the human body takes place by radiation to surrounding walls and objects, by convection to surrounding air, and by evaporation of moisture from the lungs and skin. Under comfortable conditions radiation usually accounts for between 46 and 60 per cent of the total heat loss, convection for from 15 to 30 per cent, and evaporation for from 20 to 30 per cent. The variation in loss through these different channels depends largely on physical and physiologic factors, the former including the temperature of the air and walls and the body surface exposed. The physiologic factors include the state of health, metabolic rate and vasomotor control. At usual indoor temperatures the average normal radiation loss is approximately 50 per cent, convection loss is 25 per cent and evaporation loss 25 per cent. About 9 per cent of the total heat loss takes place by evaporation from the lungs and upper respiratory passages, and 16 per cent by evaporation from the skin. Insensible perspiration is largely diffusion of water through the capillaries and is independent of sweat gland activity. Sweating is an emergency process that comes into play in warm environments or during muscular work. Insensible perspiration increases gradually with the environmental temperature up to a certain critical temperature between 86 and 90° F. at which point visible sweating breaks out.

There are important sex differences in temperature regulation, the skin temperature of the female being higher in warm atmosphere and lower in cold than the male. Women do not begin to sweat until the environment reaches a temperature two degrees above the threshold for sweating in men and the amount of sweat is less.[7]

The temperature and character of the objects towards which the body radiates are just as important as the temperature and radiating properties of the skin. This is one of the problems of modern air conditioning in which great strides have been made along purely engineering lines but in which knowledge of human requirements is incomplete and controversial. The nature of the basic physical and physiologic principles have been stated and are being studied by several investigators.[3, 6, 7, 8, 9, 10, 11]

Within a range of temperatures frequently referred to as the "comfort zone" (73° to 86° F.) the regulation of the dissipation of heat is accomplished and controlled chiefly by the sympathetic nervous system through the production of vasoconstriction or vasodilatation of the peripheral vascular systems of the upper and lower extremities.[5] The activity of the sympathetic system is in a state of continual fluctuation of tone. The fingers are richly provided with arterial-venous anastomoses the function of which is to effect large changes in the amount and distribution of the blood flow. In some 500 determinations of the flow in the fingers Burton[4] found a range of from 1 c. c./min./100 c. c. of tissue up to a maximum of 90 c. c./min./100 c. c. of tissue. Average values over a five minute period lie between 15 and 40. In a person living for several days in a hot and humid room the maximum flow increased during five days of acclimatization from 96 to 122 c. c./min./100 c. c. In a cold room the minimum flow decreased in three days from 16 to 1.8 c. c./min./100 c. c. This tremendous range of flow represents not a metabolic need of the tissues but the mechanism for temperature regulation by elimination of body heat. Physical regulation of body temperature is accomplished, not by the setting of the peripheral blood flow to an appropriate steady level, but by the adjustment of the average of a flow which is fluctuating rhythmically between high and low values.

In the "zone of comfort", or zone of vasomotor control, there is, in addition to the loss of heat by radiation and convection, the loss of evaporation (insensible loss) which remains practically constant and accounts for about 25 per cent of the total loss of heat from the body. Above about 86° F. there is maintained maximal dilation of the peripheral blood vessels and the internal temperature of the body is kept constant by the increased secretion of sweat which occurs above this temperature. Considerable evaporation of the increased production of sweat will occur at temperatures above 88° F. if the humidity is low. Fairly high relative humidities may cause small increments in the skin temperatures of various regions of the body, particularly of the fingers and toes, because the loss of heat by evaporation of water from the skin and lungs is much reduced under relatively high environmental temperatures and humidities.

It is obvious that the nearer the temperature of the environment comes to that of the blood the smaller is the amount of heat which can be lost by radiation and convection. At an air temperature of about 98.6° F. heat loss by these means must cease. At higher air temperatures than this, the body, were there no other means of cooling available, would actually gain heat. Through the secretion and evaporation of sweat and the exhalation of water vapor large quantities of heat are lost to the body and its temperature can, for this reason, be maintained constant when the atmosphere (dry) has a temperature far above that of the blood.

It is to be emphasized that evaporation from the body surface, as from the surface of any material composed largely of water, occurs quite independently of sweat secretion. It has been shown for human subjects in whom sweat glands were congenitally absent, that some 16 grams of water per square meter of body surface may be lost hourly in this way. This represents a total daily heat loss of about 400 calories for a man of average size (surface area 1.8 square meters).

The rate of evaporation of water is influenced inversely by the degree to which the atmosphere is already saturated with moisture, that is, by its relative humidity. Sweat which is not evaporated but simply drips from the skin, of course, does not increase heat loss. For this reason the sweating mechanism for the elimination of heat is badly crippled when the relative humidity is high.

Humidity of the air has practically no effect on loss of heat by convection and, until quite high, does not appreciably affect loss of heat by evaporation.[5] Even a large rise in the percentage humidity of a room at 68° F. makes very little difference in vaporization, which at this temperature accounts for only 25 per cent of the total heat loss. The dissipation of heat from the body is dependent chiefly on environmental temperature and is little influenced by relative humidity when the person under test is in the basal metabolic state, lightly clothed and at rest in still air.

Sweat is a weak solution of sodium chloride (0.2-0.5 per cent) in water with traces of other salts and urea. According to Du Bois,[9] inhabitants of northern climates possess two or three million sweat glands, those who dwell in the tropics about a million more. They are man's safety valves in hot weather and there is no one human attribute of more importance than the ability to sweat skillfully.

The sweat glands are under the control of the sympathetic nervous system but are cholinergic, not adrenergic. The usual stimulus to sweat secretion is a rise in blood temperature which exerts its effect in two ways, firstly and more importantly, upon the nervous centers, and secondly, reflexly by stimulation of heat receptors in the skin. The sweat response to a rise in temperature is abolished by sectioning the nerves to a part and is not dependent upon the circulation. In the initial stages of muscular exercise sweating is due apparently to the discharge of impulses from the motor cortex. It occurs before there is any change in rectal temperature. Later on, the effect of a rise in body temperature comes into play. In a man (indoor clothing) at rest, visible sweating usually commences at an air temperature between 86° and 90° F. Sweating may be induced by the experimental stimulation of the hypothalamus and there are spinal centers also.

ENVIRONMENTAL TEMPERATURE

One of the most potent influences in increasing heat production is a low environmental temperature. In man (naked), the metabolic rate commences to rise when the air temperature falls to around 68° F. The external temperature at which the physical mechanisms are inadequate to maintain a constant body temperature, and must be aided by increased heat production, is called the critical temperature; it varies with the amount and nature of the clothing. The muscular tissues and the liver, wherein numerous chemical reactions are carried out, are the main sources of the body's heat. The rise in metabolism which results from a fall in atmospheric temperature is effected through an increase in tone of the skeletal muscles and in some instances by fine involuntary contractions, for example, shivering and chattering of the teeth. Food, especially protein, through its specific dynamic action, is an important factor in the chemical regulation of body temperature.

The heat regulating centers in the hypothalamus are influenced in two ways—reflexly from the skin and by the temperature of the blood flowing through them. The maintenance of a constant body temperature is due to the delicate balancing of activity of two quite distinct physiologic mechanisms. One, commonly spoken of as the mechanism of "heat loss" or "heat dissipation" prevents undue rise of body temperature by facilitating the dissipation of heat and possibly also, by reducing metabolic heat. The other mechanism commonly spoken of as that of "heat production", prevents undue fall of body temperature by increasing the heat produced, as well as by restricting the dissipation of bodily heat. It has been assumed that the various peripheral structures concerned in each reaction are controlled by the same central mechanism. During the past several years evidence has accumulated which indicates a certain structural and functional independence of these two mechanisms of heat loss and heat production and they have been separated by appropriate operation and stimulation. In the intact body these two mechanisms control each other antagonistically and thus balance each other.[12]

HYPOTHALAMIC LESIONS

The farther back hypothalamic lesions are placed the greater is the impairment of the ability to keep the body temperature up to the normal level; the posterior (sympathetic) portion particularly prevents chilling, or particularly activates heat production. Contrariwise, the anterior hypothalamus (parasympathetic) is not essential for adequate regulation against chilling, but damage to it causes serious impairment in the ability to prevent overheating; the anterior portion particularly prevents overheating, or particularly activates heat loss.[12, 13] Removal of the sympathetic renders an animal unduly sensitive to cold.

It is also possible that the thyroid and adrenals are stimulated, and that the calorigenic effects of their secretions play a part in the thermoregulatory responses. Exposure to cold causes an increase in the rate of the denervated heart. It has also been reported that the serum taken from an animal exposed to cold raises the metabolism of a second animal into which it is injected. If the first animal has been thyroidectomized the effect upon the metabolism of the second animal is not observed. It may be mentioned in this connection that the temperature tends to be subnormal in suprarenalectomized or thyroidectomized animals, in Addison's disease, and in cretinism.

INDIVIDUAL ACCLIMATIZATION

In addition to the ability to adapt constantly to the changing environment is the ability to become adapted or acclimated to extremes of hot or cold weather. It is common experience that the initial discomfort becomes less after the first few days of exposure, and the "comfort zone" of temperature is between different limits according to the acclimatization of the individual to winter or to summer temperatures. There must exist slow physiologic adaptations, involving circulating blood volume, partition of heat loss, minute volume output of the heart, velocity of blood flow, which are superimposed upon the rapid mechanisms of adjustment to temperature, such that the acute reactions to temperature are slowly modified in their range and effectiveness.[11]

Adolph, Dill, Hall and Edwards[14] studied acclimatization to desert conditions at Boulder City, Nevada, and compared the results with those obtained in Boston. The conditions of climate were such as to allow maximal rates of evaporation without sweat appearing upon the skin, mean shade temperature of 95° F., maximum of 110° F. The mean humidity was 12 per cent and varied between 6 and 30. Several of the adjustments which occurred as the subjects became accustomed to life in the hot, dry climate, appeared to take place immediately, such as, increased evaporation, diminished urine output and increased intake of water. Among the slower adjustments were marked increases in rates of sweating, increased dilution of sweat, extending over a period between one and 10 days in different subjects, and an increase in the rate of ingestion of water. During residence in the dry desert, output by evaporation may increase eight-fold or more while the concentration of sweat diminishes. Sweat tends to become more concentrated as it becomes more profuse. In other words the more active the sweat glands, the less effectively is the chloride ion held back. But after several days of exposure to hot and dry conditions the concentration of sweat, at the same rate of sweating, for the same amount of exercise or work is only one half that at the beginning. Thus, one of the adaptive processes by which man becomes inured to high temperatures consists, in part, of the diminishing salt content of sweat. After acclimatization man will lose less salt and the satisfaction of his thirst will keep the volume and concentration of his body fluids more nearly optimal. Possibly heat exhaustion and certainly heat cramps are, in consequence, less apt to occur. Some subjects, however, remain susceptible to heat cramps because their sweat glands do not hold back salt effectively. Even after several weeks at Boulder City one of the subjects put out the equivalent of his daily salt intake in three hours of strenuous exercise. The study of "heat exchanges", that is the rate at which heat is gained and lost, is important because it is a plausible assumption that human endurance in hot climates is possibly limited by the rates of heat dissipation, great accumulations of heat in the body being thus prevented. At rest under the desert conditions, radiation may add heat to the body faster than heat is produced chemically. It was observed that in exercise, along with high rates of heat production, radiation and convection added heat, so that the loss by evaporation alone exceeded heat production. Recovery from exercise required one to one and a half hours for the dissipation of the heat that had accumulated. Evaporation rates were not limited by the evaporating power of the air in any of the conditions studied, since the skin stayed dry; the air was capable of taking up moisture faster than the moisture was presented to it. One may think of the sweat glands and their control as limiting the amount of moisture that is presented for evaporation. The ability of diverse individuals to withstand desert conditions appeared to vary largely with the rates of sweat production, for with increased sweat production there was less heat accumulated in the body. Subjects who did not accumulate much heat were more comfortable, felt more fit, and were able to continue exercise for longer periods. Even they, however, were limited in the rates at which they could do work for any considerable time.

One limitation to work may be the rate of sweating. The changes with acclimatization, measured in rates of evaporation and in rate of heat accumulation in the body are significant factors in enduring a given hot atmosphere.

SUMMARY

Dill, in his book on Life, Heat and Altitude[15] points out that successful adaptation to high temperatures consists in the following: (1) An ability of the sweat glands to "learn" to secrete enough water to cool the body; (2) an ability to secrete this water with minimal amount of chloride, so as to conserve extracellular water and prevent depletion of sodium chloride; (3) an ability of the circulation to supply enough blood to the periphery to be cooled; and (4) the successful integration of these abilities to permit maximum loss of heat with minimum rise in body temperature.

REFERENCES

1. Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice, Baltimore, Williams & Wilkins, 1939.

2. Cannon, W. B.: Homeostasis in senescence, J. Mt. Sinai Hosp., 5:598, 1939.

3. Yaglou, C. P.: Physical and physiologic principles of air conditioning, J. A. M. A., 108:1708; 109:945, 1937.

4. Burton, A. C.: The range and variability of the blood flow in the human fingers and the vasomotor regulation of body temperature, Am. J. Physiol., 127:437, 1939.

5. Roth, G. M., Horton, B. T., and Sheard, C.: The relative roles of the extremities in the dissipation of heat from the human body under various environmental temperatures and relative humidities, Am. J. Physiol., 128:782, 1940.

6. Sheard, C. et al.: Investigations on the exchanges of energy between the body and its environment, Am. Soc. Heat. & Ventilat. Engin. Transactions, 43:115, 1937. The role of the extremities in the dissipation of heat from the body in various atmospheric and physiological conditions, Heating, Piping and Air Conditioning, 11:330, 1939. Skin temperatures of the extremities and effective temperature, Heating, Piping and Air Conditioning, 11:252, 1939.

7. Hardy, J. D., and Milhorat, A. T.: Basal heat loss and production in women at temperatures from 23° C. to 36° C., Proc. Soc. Exp. Biol. & Med., 41:94, 1939.

8. Winslow, C.-E. A., Gagge, A. P., and Herrington, A. P.: The influence of air movement upon heat losses from the clothed human body, Am. J. Physiol., 127:505, 1939.

9. DuBois, E. F.: Heat loss from the human body, Harvey Society Lectures, 88, 1938-39.

10. Mills, C. A., and Ogle, C.: Control of body heat loss through radiant means, Am. Soc. Heat. & Ventilat. Engin., 9:697, 1937.

11. Bazett, H. C. et al.; Climatic effects on the volume and composition of blood in man, Am. J. Physiol., 129:69, 1940. Burton, A. C., et al.: Slow adaptations in the heat exchanges of man to changed climatic conditions, Am. J. Physiol., 129:84, 1940. Scott, J. C. et al.; Climatic effects on cardiac output and the circulation in man, Am. J. Physiol., 129:102, 1940.

12. Keller, A. D.: Separation in the brain stem of the mechanisms of heat loss from those of heat production, J. Neurophysiol., 1:543, 1938.

13. Clark, G. H. et al.: Hypothalamic regulation of body temperature, J. Neurophysiol., 2:61, 1939.

14. Adolph, E. F., and Dill, D. B.: Observations on water metabolism in the desert, Am. J. Physiol., 123:369, 1938. Dill, D. B., Hall, F. G. and Edwards, D. T.: Changes in composition of sweat during acclimatization to heat, Am. J. Physiol., 123:412, 1938. Adolph, E. F.: Heat exchanges of man in the desert, Am. J. Physiol., 123:486, 1938.

15. Dill, D. B.: Life, Heat and Altitude, Cambridge, Harvard University Press, 1938.

EFFECTS OF HIGH ENVIRONMENTAL TEMPERATURE ON THE HUMAN BODY

PHILIP H. JONES, JR., M. D.†
NEW ORLEANS

A consideration of the effects of heat can be conveniently divided into the immediate effects that may be observed after a short exposure to high environmental temperature and those developing after prolonged exposure to such temperature, in other words, hot climate. Inquiring into both aspects of this problem, it is seen that little exact investigation has been done, and on many aspects there is lack of understanding. Accordingly, it will be necessary to leave many problems unsettled at points where information is much needed by the physician.

---

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana, New Orleans.

EFFECTS OF LONG CONTINUED EXPOSURE TO HIGH ENVIRONMENTAL TEMPERATURE AND ACCLIMATIZATION

The ease or difficulty of body heat loss has been considered by Mills[1] as the significant factor in the effect of climate on man. This factor dominates the levels of internal combustion activity. Voit,[2] Rubner,[3] and Sundstroem[4] also found a relation between external temperatures and internal combustion rate in man and animals. Oxygen consumption increases as surrounding temperatures fall. The reverse, that is, decline in oxygen consumption with rising seasonal mean temperature levels, has been reported by various observers. Gessler,[5] Kunde,[6] Nakagawa,[7] Griffith,[8] and Martin,[9] all found a lower oxygen consumption in the summer months as compared to the winter months. Many of these observations were made under carefully controlled basal conditions. The decline in metabolic rate varied from 6 to 15 per cent. Seasonal fluctuations, according to Mills,[10] are probably widest in the middle and lower temperate regions where there is considerable depressive heat, but also, where the cold is not severe. Since environmental temperature influences the resting metabolism of man, it is argued that it has a more important effect upon the working metabolism or activity combustion of the individual. It is calculated that about 80 per cent of the combustion energy liberated through muscular activity must be dissipated from the body as waste heat, as our bodies are only about 20 per cent efficient as energy machines. Still further, it has been shown by McClintock and Paisley[11] that even this efficiency becomes less as the working metabolic rate rises. This produces the paradox that in what he does, the more active northerner is less efficient, so to speak, per stroke than the more sluggish southerner. In other words, even though the output of work per unit of time of the southerner is low, he is the more efficient from a machine point of view than the energetic northerner. Lee[12] finds that in addition to the excretory activity of the thyroid being reduced in conditions of heat, there is also a suppression of the activity of the suprarenal medulla, and he considers that this is one of the chief factors of acclimatization. Another effect is decreased appetite, which is a frequent accompaniment of exposure to heat. It is suggested that this is related to the decline in metabolic activity brought on by the heat.

Mills[10] found that in the 1934 heat wave there was a marked fall in blood pressure level and oxygen consumption even in those people showing no symptoms of heat stroke or prostration. Such a change happens in a minor degree in people going from temperate regions to the tropics. Animal experiments with rabbits were conducted by Mills with three groups of animals, which were in a cold room, a hot room, and were changed from one to the other, respectively. At the end of this time, they were tested for their ability to endure heat. The animals from the hot room withstood the heat the longest time, those from the cold room next, and those that had been changed daily from hot to cold were the least resistant. These experiments were interpreted as adaptation to constantly high temperatures rendered animals more resistant to excessive heat than is seen in adaptation to changeable environment. Logically then, the differences in susceptibility to excessive heat shown by individuals from varying locations are dependent upon those differences in metabolic activity and heat adaptation that have been set up in their own particular communities. Therefore, "the character of the climate determines in a large measure the general heat sensitivity of the population." It is further seen that the population as a whole is more affected by severe heat in the beginning than it is by similar heat at the end of summer. Such a change takes place in some degree during an individual heat wave, as it is seen that heat stroke tends to come at the end of such a wave.

The results of these metabolic effects on disease states must be stated with caution. Bean and Mills[13] find that coronary occlusion occurs more frequently in winter than in summer in the north temperate region studied. They find the same in regard to heart failure in arteriosclerotic and rheumatic patients. Syphilitic heart failure fails to show any such relationship. It is presumed, however, that these observations contrast severe cold with summer warmth, rather than with tropical heat. Kligler[14] considers that tropical heat enhances the susceptibility to intestinal infection by retarded gastrointestinal secretion, by anhydremia and reduced gastrointestinal motor activity, and by a state of avitaminosis—particularly B, which follows the depression of the appetite.

THE IMMEDIATE EFFECTS OF HEAT

Prickly heat: In regard to frequency of the immediate effects of heat, the well-known condition of prickly heat, or lichen tropicus, or heat rash, is, as you know, the most common. Its clinical features are so familiar to this group as not to require description here. Explanation of the etiology and pathology, however, is not nearly so satisfactory. The cause of the condition is variously ascribed to exposure to excessive moist heat. Infancy, obesity, debility, overclothing, and a tendency to hyperhidrosis are regarded as predisposing. Immoderate use of alcohol renders one especially susceptible. Histologic study by Robinson[15] indicated that the papules were due to an inflammatory exudation around the orifices of the sweat ducts, but not of the sweat glands. Pollitzer[16] described vesicles occuring in the rete mucosum. The inflammatory reaction occludes the sweat duct. It is not clear in any investigation of this subject what the origin of the exudating process really is.

Heat urticaria: Less common, but of importance to many patients, is the urticaria produced by heat. This may be local or general. It is observed that many people have hives after a very hot bath or unusual exercise. This is the generalized type, and here the work of Grant, Pearson and Comeau[17] showed that the lesion was produced by the release of acetylcholine at the termination of the cutaneous nerves. In addition to the generalized type, there is a localized form of urticaria in which the wheals result from the direct action of the heat on the skin.[18]

Prophylaxis and therapy of skin effects of heat: The prevention of lichen tropicus and heat urticaria is obvious in type, and that is avoidance of exposure to such environment. When this is not possible, effort should be made so that exposure will be progressively increased and not be suddenly excessive at one time. The treatment of the lesions, once they have become established, is palliative and should consist of soothing lotions followed by the application of a bland powder, such as corn starch.

THE IMMEDIATE SYSTEMIC EFFECTS OF HIGH ENVIRONMENTAL TEMPERATURE

In the effort to maintain uniform body temperature in the presence of a high environmental temperature, the body is called upon for functional adaptations. Consequent upon these efforts, three conditions are known to develop among certain individuals exposed to this environment. These are: Heat cramps, heat exhaustion, and heat stroke.

Heat cramps: The condition now recognized as heat cramps was described in 1878, pertaining to conditions in the gold mines of Virginia City, Nevada. Attention to this condition for its clinical importance began about twenty years later, and the term is defined (Talbott)[19] as referring to painful spasms of the voluntary musculature following muscular activity in a high environmental temperature.

The incidence approximates that of heat stroke. The attacks are relatively common in the summer months in industrial centers in association with boilers and similar surroundings. Commonly, it is noticed in the steel industry and in the casting industry.

Although temperatures are high throughout the year, there is a distinct seasonal summer incidence. The humidity is of significance, but except in so far as it has some bearing on the effective temperature, it is secondary to the degree of heat itself. Predisposing causes are the use of alcohol, associated with insufficient food, mineral salts, water, and vitamins. Another predisposing factor is a recent attack of heat cramps not adequately treated. Other factors are those that have a definite but imponderable effect on general resistance, such as sleep, rest, irregular habits, and similar hygienic influences.

Symptoms: While at work on a hot day, or possibly hours later, the patient is suddenly seized with a violent pain associated with spasmodic contraction of various groups of muscles. Such spasms may occur in the muscles of the abdomen, arms, and back. The pain is severe. The patient may writhe and twist, and between spasms may toss about restlessly. In the space of five or ten minutes, the cramps recur and continue to the point where the patient may become exhausted.

Examination of the patient shows fibrillary twitchings of the muscles, violent contraction following manipulation of the muscles. The temperature is rarely above 100°, and the highest recorded is 104° F. The cardiovascular system is apparently not affected nor is the respiratory. It is the general impression that when sweating returns the cramps disappear.

Chemistry and morphology of the blood: Talbott[19] found the protein of the serum increased. The highest concentration observed by him was 10.6 grams per cent. He regards this as due to dehydration and probably not related to the pathogenesis of the disease. Concentration of the hemoglobin was correspondingly increased. He found that there was a loss of water from the red cells themselves of from 1 to 5 per cent.

Changes in the concentration of chloride and sodium were constantly present, and this has been found by other authors. Investigations by various authorities have shown reduction in chlorides varying from 2 up to 17 per cent. There is no significant change in the blood sugar. Non-protein nitrogen is elevated according to various observers. The amount of elevation is usually about 10 to 25 mg., but may be three times that. The red blood count is increased in proportion to the hemoglobin. The white blood cell count is increased, the usual counts being about 10,000 to 15,000.

Urine: The urine shows a diminution in the amount of chlorides during the attack. Chloride reappears in the urine one to three days after recovery.

Diagnosis: The diagnosis of heat cramps has to be made after considering other possibilities, such as those of an acute abdomen, strychnine poisoning, tetany, hysteria, and nocturnal cramps. It is not usually difficult when a correct history is obtained and the patient is seen experiencing the widespread muscular contractions of such a severe character.

Pathogenesis: Consideration of the data of various investigators indicates that heat cramps result from a diminished amount of sodium chloride in the blood, and probably, in the tissue spaces, and that when the critical level of sodium chloride is reached in the working subject muscle cramps appear. Consideration of other factors, such as disturbances of carbohydrate metabolism and acid base equilibrium, and kidney insufficiency, reveals that changes in these factors are insufficient to produce the effects mentioned.

Treatment: The patient should be put at rest. Sodium chloride and fluids should be supplied at once. The environment should be made comfortable. If facilities are available intravenous injections of normal physiologic saline should be given immediately. If able to take fluids and salt by mouth, one gram of sodium chloride should be given every hour until 5 grams have been ingested. It is common to observe that cramps subside as quickly as the effects of salt have been obtained. Should circumstances require it, morphine, ¼ gr. by needle may be used, but this is slower in giving relief than salt. The patient should be continued at rest for several days, and possibly, for a week.

Preventive treatment: The environment of the workers should be made as comforable as possible. Water should be supplied freely to those workers who of necessity must labor in high temperatures. Salt should be supplied in one of several ways: by using 1/10 of 1 per cent salt in the drinking water, or by the use of tablets taken with the water or at meals. Attempts should be made to supply 5 to 10 grams of salt per day, depending on the duration of the heat exposure.

HEAT EXHAUSTION

In this condition, the patient who has been exposed to an excessively high environmental temperature becomes weak, complains of vertigo and dimness of vision. Excessive sweating is usually present. Examination reveals a state of shock, a weak, rapid, thready pulse, low blood pressure, normal or subnormal temperature, uneven respiration. The skin is clammy. The sphincters may be relaxed. The temperature may be subnormal, normal, or slightly above normal, if taken by rectum.

Examinations of the blood in this type of heat disease, by Heilman and Montgomery,[20] showed an average blood sugar of 64 mg. per 100 c. c., and a blood specific gravity of 1.062. This specific gravity figure was the same as that of controls. Plasma chloride concentrations showed changes, but not in proportion to the depletion of the blood sugar. Observations by McLain and Montgomery[21] showed a tendency to blood concentration, decrease in blood sugar, and lowering of alkali reserve.

Treatment: The treatment is essentially that of shock, with the use of 5 per cent glucose infusions. If the temperature is subnormal, external heat should be applied, but in this situation, the patient should be watched to prevent sudden hyperpyrexia. Coramine and adrenalin may be useful, as in other forms of circulatory collapse.

HEAT STROKE

Heat stroke tends to come in the summer months. It is found towards the end of a heat wave. It may develop in persons exposed to high external heat in- or out-of-doors. There seems to be a predilection for it to appear in infancy, or beyond the age of seventy. Individuals in the period of middle life are more resistant than those at extremes. Alcoholism is regarded as being contributory. Direct exposure to the rays of the sun does not appear to be an important factor. In a study made by Ferris, Blankenhorn, Robinson and Cullen,[22] 44 patients suffering from heat stroke were studied in the Cincinnati General Hospital. Only nine were doing work which required moderate physical effort. Thirteen of the patients were employed in working but not exposed to an environment warmer than that of the average person. Seven patients were less than 50 years old; the majority were 60 to 70 years old.

Prodromal symptoms: Certain patients complain of weakness, dizziness, nausea, and occasional attacks of fainting, two or three days before their collapse. Headache is common. There is a feeling of oppression by the heat.

Clinical manifestations: The patient may collapse suddenly and may or may not go into unconsciousness. During the onset, there may be a state of great nervous excitement simulating an acute mania, with laughing, crying, talking incoherently, and aimless and uncontrolled struggling with those about them. The skin is hot and dry. It is commonly reported that the patient's collapse follows a period in which he perspired normally, then suddenly ceased to perspire. There is a maculo-papular rash over the body which is frequently purpuric. Respiration is deep and stertorous. The face is flushed. The muscles are flaccid. There may or may not be incontinence. The acutely ill patients are unconscious or stuporous. Those with temperature of 106° or less are usually conscious. The blood pressure at the onset is elevated and declines as the clinical condition gets worse. With the increased blood pressure, there is a high pulse pressure. The pulse is rapid and may become irregular.

Chemistry of the blood: Examination of the blood in this condition by various investigators has revealed an increase in the serum chloride; and by others, no significant changes from the normal. In other respects, the state of the blood has not been found significantly different from that of controls.

Pathogenesis: The pathogenesis of this condition is not understood. It has been variously suggested that it is an exhaustion of the adaptation mechanism or an exhaustion of the sweat producing system, a form of cardiac failure, a form of infection, and a disturbance of the heat control center. Noteworthy findings at autopsy, according to McKenzie and LeCount,[23] are edema and congestion of the brain, edema of the lungs, cloudy swelling of the liver, kidneys, and myocardium, and petechial hemorrhage of various mucous membranes. These findings are in agreement with the report by Wilson,[24] who found extensive hemorrhage under the endocardium of the left ventricle and septum in one patient dying of heat stroke and in three patients dying after fever therapy.

Treatment: The patient should be removed to a cool place with free circulation of air, all clothing removed, and covered with a wet sheet upon which there is a free flow of water and a steady stream of air from an electric fan or from manual efforts. While this is in process, fluids should be supplied by infusion or by a duodenal tube. The temperature should be reduced as rapidly as possible to about 102°; stimulants and other measures, such as recommended in heat exhaustion, may then become needed.

Prognosis: In 44 patients reported by Ferris, Blankenhorn, Robinson, and Cullen,[22] 17 or 39 per cent died. Of the 39 patients who lived long enough to obtain some form of treatment, 12 or 30 per cent died. None with a temperature below 107° died.

THE EFFECTS OF AIR CONDITIONING

Inquiry into the effects of air conditioning on the human organism is just beginning. The change from hot air into cold air in summer is more of a tax on bodily adaptation than in winter, because in winter the excursion into cold air is protected in advance by additional clothing. The rate of change rather than the degree of change appears to be the important thing. Mills[25] considers that the difference between outside hot and inside cool temperature in summer will have to be determined by observations for each locality. The further one progresses into tropical heat, the smaller should be the difference. The differences should be less in the latter part of the summer than in the early part of the summer. He suggests that in the Gulf area not more than 8° F. difference should be allowed. Where heat periods are brief and cool weather is common, a 20° difference might be tolerated, that in most of the northern United States a 12° difference is suggested.

REFERENCES

1. Mills, C. A.: Climate and metabolic stress, Am. J. Hyg., 29:14, 1939.
2. Voit, C.: Quoted by Mills (10).
3. Rubner, Max: Quoted by Mills (10).
4. Sundstroem, E. S.: The physiological effects of tropical climate, Physiol. Rev., 7:320, 1927.
5. Gessler, H.: Quoted by Mills (10).
6. Kunde, M. M.: The after effects of prolonged fasting on the metabolic rate, J. Metabolic Research, 3:399, 1923.
7. Nakagawa, I.: Growth and metabolism: IV. Changes in basal metabolism of children during a year, Am. J. Dis. Child., 49:1232, 1935.
8. Griffith et al.: Metabolism and body temperature under basal conditions, Am. J. Physiol., 87:602, 1929.
9. Martin, C. J.: Thermal adjustments of man and animals to external conditions, Lancet, 2:617, 1930.
10. Mills, C. A.: Medical Climatology, Charles C. Thomas, Baltimore, 1939.
11. McClintock, J. T., and Paisley, S.: Cost of work in relation to basal metabolism, Proc. Soc. Exper. Biol. & Med., 30:162, 1932.
12. Lee, Douglas H. K.: The human organism and hot environments, Trans. Roy. Soc. Trop. Med. & Hyg., 29:7, 1935.
13. Bean, W. B., and Mills, C. A.: Coronary occlusion, heart failure and environmental temperatures, Am. Heart J., 16:701, 1938.
14. Kligler, I. J.: Influence of climate on susceptibility to enteric infections, Trans. Roy Soc. Trop. Med. & Hyg., 29:531, 1936.
15. Robinson, A. R.: Miliaria and sudamina, J. Cut. Dis., 2:362, 1884.
16. Pollitzer, S.: Prickly heat, lichen tropicus, J. Cut. Dis., 11:50, 1893.
17. Grant, R. T., Pearson, R. S. B., and Comeau, W. J.: Observations on urticaria provoked by motion, by exercise and by warming the body, Clin. Sc., 2:253, 1936.
18. Hopkins, J. G., Kesten, B. M., and Hazel, O. G.: Urticaria provoked by heat or by psychic stimuli, Arch. Dermatol. & Syph., 38:679, 1938.
19. Talbott, John H.: Heat cramps, Medicine, 14:324, 1935.
20. Heilman, M. W., and Montgomery, E. S.: Heat disease: A clinical and laboratory study, J. Indust. Hyg. & Toxicol., 18:651, 1936.
21. McLain, P. L., and Montgomery, E. S.: Observations on the blood of workmen exposed to high temperatures, J. Clin, Invest., 17:417, 1938.
22. Ferris, E. B., Jr., Blankenhorn, M. A., Robinson, H. W., and Cullen, Glenn E.: Heat stroke: Clinical and chemical observations on 44 cases, J. Clin, Invest., 17:249, 1938.
23. McKenzie, P., and LeCount, E. R.: Heat stroke; with a second study of cerebral edema, J. A. M. A., 71:260, 1918.
24. Wilson, Gale: The cardiopathology of heatstroke, J. A. M. A., 114:557, 1940.
25. Mills, C. A.: Air conditioning in hospitals, Hospitals, 2:21, 1937.
26. Yaglou, C. P.: Sanitary aspects of air conditioning, Am. J. Pub. Health, 28:143, 1938.

FULMINATING MENINGOCOCCAL SEPTICEMIA WITH BILATERAL SUPRARENAL HEMORRHAGE

REPORT OF TWO CASES*

EMMA S. MOSS, M. D.†
AND
JOHN R. SCHENKEN, M. D.†
New Orleans

REVIEW OF LITERATURE

The first proved case of fulminating meningococcal septicemia (the so-called Waterhouse-Friderichsen syndrome) was reported by Andrews[1] in 1906 and occurred, curiously, in a 53 year old male; the disease is most frequent in very young children. The patient, who had previously been perfectly well, died 12 hours after the onset of symptoms, and a pure culture of meningococcus was isolated from the blood and from the spinal fluid, though no microscopic evidence of meningeal inflammation was found. Intracellular diplococci were also observed in the granulocytes of the antemortem blood smear.

The first presumptive case of this disease had been reported in 1894 by Voelcker,[2] who made a questionable diagnosis of an unusual type of smallpox. A previously healthy two year old child had suddenly become ill, with high fever and a purpuric rash, and had died within 24 hours. The only significant postmortem finding was bilateral suprarenal hemorrhage. No bacteriologic procedures were carried out. In 1901 Little,[3] on the basis of four personal cases and a study of eight other cases reported in the literature, stated that "the symptoms in all of these cases . . . are so similar and so constant as to form quite a recognizable clinical group." He was unable to demonstrate an infectious agent in any of his personal cases.

Waterhouse,[4] in 1911, reported a rapidly fatal case of suprarenal hemorrhage accompanied by skin purpura, and reviewed the 15 cases of this syndrome previously reported in the literature. He was unable to isolate any organism from the spinal fluid, spleen or suprarenal glands. Friderichsen,[5] in 1918, reported two proved cases of the disease and reviewed the 28 previously reported in the literature. Like Waterhouse, he pointed out the constancy of the clinical picture in this rapidly fatal form of meningococcal septicemia with suprarenal hemorrhage and an apparent absence of meningeal inflammation.

Glanzmann,[6] who reported two proved cases of the disease and a third presumptive case in 1933, was the first to apply the name of Waterhouse-Friderichsen syndrome to this clinical entity. Since the disease was first described by Little and since the first proved case was reported by Andrews, it would seem that if any eponym were to be employed—we personally are opposed to such terms—it should be called the Little-Andrews syndrome rather than the Waterhouse-Friderichsen syndrome, by which name it is now generally known.

Important reviews of the literature have been published by Aegerter[7] and Sacks[8] in 1937 and Kunstadter[9] in 1939. Aegerter's review included 57 cases, two of which he himself reported, and 55 of which had come to postmortem. According to Kunstadter, 73 cases are now on record, only 26 of which have been reported from the United States and only four of which, although the condition is most frequent in children, appear in the American pediatric literature. The case he reports brings the number in the latter group to five.

The exact number of cases on record is somewhat difficult to determine because of apparent duplications in the early literature and because of the inclusion, in some reports, of an occasional unproved case. It is interesting to observe, however, that the number of proved cases is still very small. Of the 38 cases collected by Bamatter[10] in 1934 the etiologic agent had been isolated in only 10, perhaps, as has been suggested, because of faulty methods employed in many of the early cases. Since that time the meningococcus has been identified by Snelling and Erb[11] in three cases, by Aegerter in two, and by Boone and Hall,[12] Foucar,[9] Sacks, Sulzer,[9] DeBruin,[9] Weingart,[9] and Carey [13] in one case each.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the Departments of Pathology and Bacteriology of the School of Medicine of Louisiana State University and Charity Hospital of Louisiana at New Orleans.

The case reported by Carey represents, so far as we are able to determine, the single instance on record of recovery in this disease. In most of the reported cases death occurred within 24 hours or within an even shorter period of time. In the occasional case the duration was 48 hours. Carey's patient was a 27 year old white woman who presented a characteristic clinical picture of fulminating meningococcal septicemia with a purpuric rash. Cultures of the blood and the cerebrospinal fluid were positive for meningococci. Therapy, as suggested by Aegerter, consisted of cortical adrenal extract, infusions of dextrose and sodium chloride solution, and epinephrine. Antimeningococcic serum and sulfanilamide were also used, and the multiple therapy, as the author points out, makes it impossible to estimate the effectiveness of the attempted specific treatment with cortical adrenal extract. This is one of the very few cases on record in which the diagnosis was made antemortem and the patient lived long enough to permit specific therapeusis.

The following two cases are presented as classic clinical examples of this syndrome and also as illustrations of the comparative pathologic findings in cases of short and of relatively long duration.

CASE NO. 1

A white male child, 18 months of age, who had previously been perfectly well, was suddenly seized with convulsions at 4:00 p. m. March 11, 1938. He was admitted to Charity Hospital of Louisiana at 7:35 p. m. and died five minutes later, three hours and forty minutes after the first symptom had occurred. Stupor had alternated with convulsions prior to his admission to the hospital. The rectal temperature was 105° F., and the other positive findings included marked trismus, marked cyanosis, and a generalized purpuric rash. The time at which the purpura had appeared could not be determined. There was no rigidity of the neck.

Necropsy: Postmortem examination, which was performed two hours after death, revealed a well developed and well nourished male child who presented a generalized, mottled cyanosis of the skin not unlike postmortem lividity. A macular purpura was present and was most prominent over the face, neck, and upper thorax.

The serosal membranes of the pericardial, pleural and peritoneal cavities showed petechiae. The thymus, which weighed 30 gm., appeared normal. The heart, lungs, pancreas and gastrointestinal tract were congested but otherwise appeared normal. The mesenteric lymph modes were enlarged, and were soft and gray. The spleen weighed 45 gm. Its capsule was tense and the surface exposed by section showed a deeply congested, moderately firm pulp and prominent malpighian corpuscles. The liver weighed 460 gm. Its cut surface had a mottled yellowish-brown appearance.

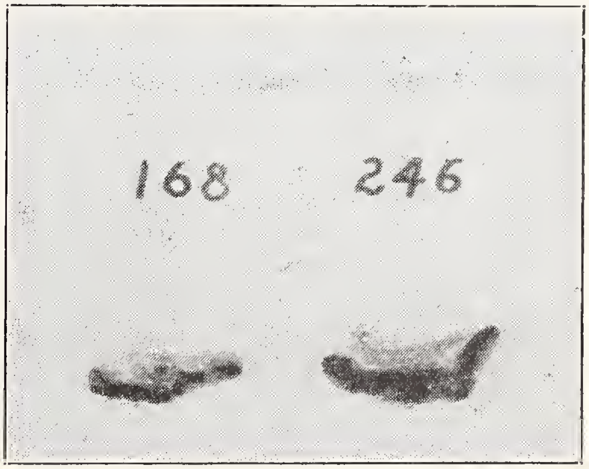


Fig. 1. Photographs of suprarenal glands of Case 1 (246) and Case 2 (168). Note the maintenance of the normal contour of each gland and the diffuse hemorrhage throughout the parenchyma.

Each adrenal (fig. 1) weighed 10 gm., in contrast to the normal average weight of 4.5 gm. The normal markings of each gland were masked by a diffuse, generalized hemorrhage, although the general contour was preserved. The fatty tissue surrounding each gland, as well as the perirenal fat, was edematous. The right kidney weighed 30 gm. and the left 47 gm. Both were markedly congested. The bladder and genital organs were normal.

The brain weighed 1,220 gm. Moderate edema was present, as evidenced by flattening of the convolutions. The meningeal vessels were intensely congested, but no hemorrhages were observed. There was no evidence of exudate in the subarachnoid spaces over the cerebral hemispheres or over the base of the brain. The hypophysis appeared normal.

The middle ears showed no exudate. The paranasal sinuses were not examined. Examination of the coronal sections of the brain after fixation revealed nothing additional.

Microscopic Examination: The sections were stained by hematoxylin and eosin. Mild parenchymatous degeneration and marked congestion were present in all the viscera. The pulmonary alveoli contained a considerable amount of fluid, but no cellular exudate. The liver showed a moderate degree of fatty metamorphosis. The germinal centers of the malpighian corpuscles showed swollen cells, irregular masses of a pink-staining coagulum, and a few polymorphonuclear leukocytes in the central portions. Diffuse hemorrhage, without inflammatory cell infiltration, was present throughout the medulla and cortex of the suprarenal glands. The few cells which could be recognized were swollen and irregular in outline. There was no site of predilection for the hemorrhage.

The skin showed marked congestion of the vessels of the corium, slightly swollen endothelial cells, and small accumulations of red blood cells around many blood vessels. There was no inflammatory cell infiltration.

The brain matrix was vacuolated. All the vessels were distended, some only with red blood cells, many with red blood cells and an appreciable number of marginating polymorphonuclear leukocytes, and some with a small number of red blood cells and a large number of polymorphonuclear cells. Many capillaries contained an acellular hyaline coagulum resembling hyaline thrombi. The nerve cells showed slight condensation of their cytoplasmic granules, and some of the glial cells had definitely granular nuclei. A few perivascular polymorphonuclear leukocytes were noted in the tissues of the pia in one small area over the cerebral cortex, but no exudate was present in the subarachnoid space. The veins, capillaries and blood sinuses of the choroid plexus were distended with blood, which showed many marginated polymorphonuclear leukocytes, a moderate number of which were present in the walls of some of the veins and sinuses and in the surrounding supporting tissue (fig. 2). In one area a few polymorphonuclear leukocytes and mononuclear cells were present on the ventricular surface of the epithelium, and occasional polymorphonuclear leukocytes were observed at the bases of the epithelial cells.

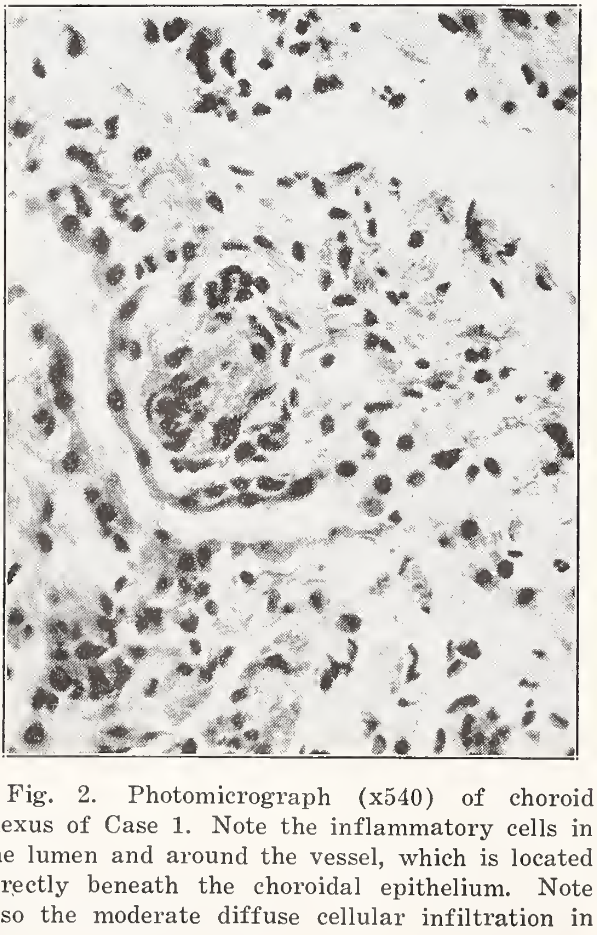


Fig. 2. Photomicrograph (x540) of choroid plexus of Case 1. Note the inflammatory cells in the lumen and around the vessel, which is located directly beneath the choroidal epithelium. Note also the moderate diffuse cellular infiltration in the supporting tissues.

Bacteriologic Studies: Brain broth (25 c. c.) was inoculated with blood from the heart (5 c. c.). After five days of incubation at 37°C., evidences of growth were observed, and a smear revealed gram-negative, biscuit-shaped diplococci of various sizes. No growth appeared on plain media, but excellent growths were obtained upon ascitic fluid blood agar. The organisms were morphologically and tinctorially typical meningococci, but it was only after repeated transfers on artificial media that agglutination by type II serum was finally accomplished.

CASE NO. 2

A white female child, 18 months of age, who had previously been perfectly healthy, suddenly became dyspneic at 8:00 p. m. February 7, 1940. She was intensely cyanotic for 15 to 20 minutes, and a rash rapidly appeared over the face and neck. She vomited several times, and during the night passed five loose stools, the last of which contained bright red blood.

She was admitted to Charity Hospital of Louisiana at New Orleans at 5:00 a. m. February 8 (nine hours after the onset). At this time the rectal temperature was 107°F. Physical examination revealed a well developed, well nourished child who was comatose and extremely dyspneic. A generalized macular purpura was most marked over the face and neck. The lips were cyanotic. Petechiae were present in the pharyngeal and buccal mucosae. There was no rigidity of the neck and the reflexes were normal. Lumbar puncture revealed clear spinal fluid, with no increase in cells or protein; no organisms were noted on direct smear.

Meningococcal septicemia was suspected, and 40,000 units of antimeningococcal serum were administered intravenously, and 10,000 units intrathecally. The child died at 8:45 a. m. February 8, 12 hours and 45 minutes after the onset of the first symptom. She vomited dark brown, bloody fluid shortly before death.

Necropsy: Postmortem examination, which was performed three hours after death, revealed a well developed, well nourished white female child, who presented a generalized macular purpura, most marked over the face, neck and upper thorax (fig. 3). The entire body was involved except for a few small areas on the trunk and lower extremities.

Straw-colored fluid (30 c. c.) was present in the pericardial cavity, and petechiae were observed in the pleural cavities. The peritoneal cavity was normal. The thymus, which weighed 22 gm., appeared normal. The musculature of the heart was flabby, but the organ was otherwise normal. The lungs were normal except for scattered petechiae. The spleen weighed 35 gm. Its capsule was tense and the cut surface revealed deeply congested, moderately firm pulp and prominent malpighian corpuscles. The liver weighed 400 gm. The parenchyma was soft, and the surface, on section, had a mottled, reddish-yellow color. No lesions were present in the pancreas. The mucosa of the gastrointestinal tract was deeply congested; the lymph follicles and Peyer's patches were prominent, and the mesenteric lymph nodes were enlarged and deeply congested.

Each adrenal gland was about twice the normal size. The normal markings were obliterated by diffuse hemorrhage, but the contour of each gland was well preserved (fig. 1). The genito-urinary organs were normal except for congestion.

The brain weighed 1,240 gm. The meningeal vessels were intensely congested and the brain substance was somewhat edematous. No exudate was noted in the subarachnoid space. No additional findings were observed on coronal sections. The middle ears were free of exudate. The superior surface of the cribiform plate showed hemorrhagic discoloration. The ethmoid cells contained a considerable amount of reddish-brown fluid, but the other paranasal sinuses were free from exudate. The hypophysis appeared normal.

Microscopic Examination: The visceral changes resembled those described in Case 1 except for the following points: The heart showed a slight degree and the liver a marked degree of fatty metamorphosis. The germinal centers of Peyer's patches, the mesenteric lymph nodes, and the malpighian corpuscles of the spleen were edematous. Many of the cells were swollen and necrotic, and phagocytosis of the granular nuclear debris was observed.

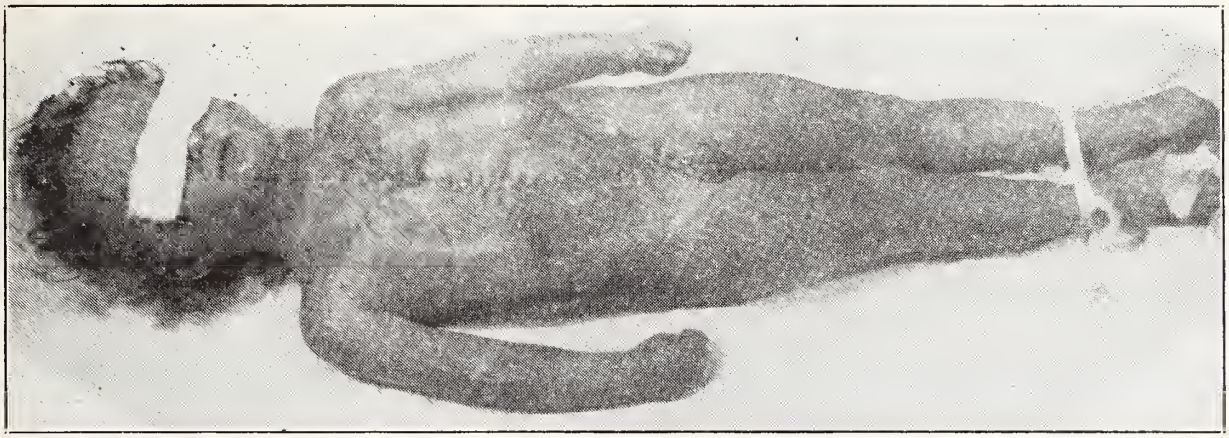


Fig. 3. Postmortem photograph of Case 2. Note the generalized discoloration and the macular purpura, which is most marked over the face, neck and upper thorax.

The hemorrhage into the suprarenal glands involved practically the whole organ, but was most prominent in the zona reticularis and the medulla. In some areas it was confined to the zona glomerulosa and the contiguous portion of the zona fasciculata, and the cells of the medulla were fairly well preserved in one small area.

The blood vessels in the corium of the skin showed congestion and perivascular hemorrhage. Frequently they contained fibrinous thrombi and endothelial cells which were swollen and vacuolated. An increased number of endothelial cells was seen in some of the blood vessels and lymphatics. Occasionally the lumen of a lymphatic vessel was filled with a fine network of fibrin.

A small area of rather extensive infiltration by polymorphonuclear leukocytes was observed in the tissues of the leptomeninx over the pons (fig. 4), though none were free in the subarachnoid space. The epithelial cells of the choroid plexus were somewhat hydropic. An occasional vessel showed margination of polymorphonuclear leukocytes, and an occasional cell of the same type was observed in the vessel wall and the supporting tissue.

Bacteriologic Studies: Direct smears made from material from the ethmoid cells beneath the cribiform plate, the right and left frontal sinuses, the

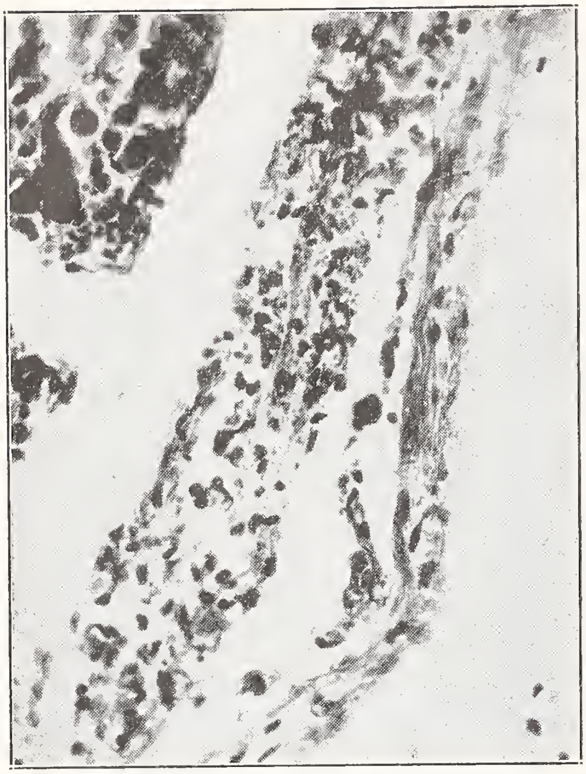


Fig. 4. Photomicrograph (x540) of the leptomeninx over the pons of Case 2. Note that the subarachnoid space is free of exudate and that the polymorphonuclear leukocytic infiltration is confined to the tissues.

purpuric spots, and the blood revealed gram-negative, biscuit-shaped diplococci of various sizes. A gram-negative diplococcus was observed on the hydrocele fluid agar slant inoculated with material from the paranasal sinuses but could not be isolated in pure culture. The same organism appeared in brain broth inoculated with heart blood. A feeble growth of gram-negative diplococci was noted on hydrocele fluid agar inoculated with this broth, but they were not viable after the first transfer. The growth was oxidase positive.

COMMENT

The two cases reported herewith correspond in most respects to the majority of reported cases, but show certain points of difference.

Both cases occurred in children under two years of age, which corresponds with the age incidence of most reported cases. According to Sacks, 70 per cent of the reported incidence is in children under this age. Attention has already been called to the fact that the first proved case occurred in an individual 53 years of age, and several other reported cases occurred in adults.

The symptoms and signs observed in these patients were observed in most of the reported cases. Headache, chills, dizziness and joint pains were also observed in some of the reported cases, chiefly in adults or older children in whom, with fever, they frequently constituted the initial symptoms. The initial symptoms in our own cases were convulsions and dyspnea, respectively. In most reported cases in infants and young children, however, the illness is likely to be initiated by a cry, followed closely by alternating cyanosis and pallor. Purpura usually appears in from three to 12 hours; it was absent in 13 of the 57 cases collected by Aegerter. In some of the reported cases a mild upper respiratory infection preceded the illness, and in Kunstadter's case otitis media was regarded as the etiologic factor.

All authors comment upon the dramatic speed with which symptoms and signs develop. In Kunstadter's case a graduate nurse observed the child (a 12 day old baby) become cyanotic and the skin become ecchymotic while she "watched dumfounded." When the physician saw the patient 15 minutes after the first symptom or sign was observed, ecchymotic areas, many very large, and petechiae covered the whole body.

It was possible in the second case which we are reporting to demonstrate organisms in direct smears from the blood and the purpuric spots, and this might have been possible in the first case had the proper examinations been made. Organisms were observed in many of the reported cases in which these examinations were made, and emphasis should be placed upon the importance of this procedure for early presumptive diagnosis, before blood cultures can be reported.

Although the clinical absence of meningitis in both these cases corresponds with similar findings in most of the reported cases, some microscopic evidence of meningeal inflammation was observed in both. In the first case there was moderate choroiditis and slight, localized, meningeal perivascular inflammatory cell infiltration. In the second case the choroiditis was slight and the meningeal infiltration more marked. A search of the literature has failed to reveal any reported case in which choroiditis was observed. In the few instances in which meningitis was reported, the duration of symptoms before death was longer than in either of our cases.

It is interesting to observe that the patient who had hemorrhage over the cribiform plate and a hemorrhagic exudate in the ethmoid sinus had the greater involvement of the meninges (Case 2), whereas the patient with definite choroiditis had little meningeal cellular infiltration (Case 1). In Case 2 the involvement was localized to the base of the brain. The superior surfaces of the hemispheres appeared normal.

The characteristics of the hemorrhages into the suprarenal glands in both these cases corresponded with the characteristics of the hemorrhages in most of the other reported cases. The contour of the gland was maintained, there was an absence of inflammatory cellular infiltration, and the hemorrhage, although no part of the gland escaped, seemed to have a predilection for the medulla and zona reticularis.

In all the reported cases in which definite statements on this point were made, there was a marked hyperplasia of the lymph elements. In the first of our cases marked degenerative changes were noted in the germinal centers; in the second case the changes had gone on to necrosis, with phagocytosis of the cellular fragments. These findings are commonly observed in any severe toxic state and are not peculiar to the condition under discussion. It is our own opinion that the enlargement of the lymphoid structures observed during the first 12 hours of illness represents, for the most part, edema and necrosis rather than true hyperplasia.

Microscopic examination revealed only slight changes in the skin of the patient who lived less than four hours (Case 1), in contrast to swelling of the endothelial cells and the presence of thrombi in the blood and lymphatic vessels in the skin of the patient who lived 12 hours (Case 2). These findings seem to indicate that the injurious agent is probably directly responsible for the lesions, but that in many cases the disease is terminated by death before an inflammatory response beyond the vascular phenomenon can occur.

SUMMARY

Two additional cases of fulminating meningococcal septicemia are reported, in both of which microscopic evidences of meningeal inflammation were demonstrated, though there was no clinical evidence of it. Meningococci were cultured from the heart blood in both cases, and the same organisms were found in direct smears from the blood and the purpuric spots in the second case.

REFERENCES

1. Andrews, F. W.: A case of acute meningococcal septicemia, Lancet, 1:1172, 1906.

2. Voelcker, A. F.: Path. Rep., Middlesex Hosp. Rep., 1894-95.

3. Little, E. G.: Cases of purpura, ending fatally, associated with hemorrhage into the suprarenal capsules, Brit. J. Dermatol., 13:445, 1901.

4. Waterhouse, R.: A case of suprarenal apoplexy, Lancet, 1:577, 1911.

5. Friderichsen, C.: Nebennierenapoplexie bei kleinen Kindern, Jahrb. f. Kinderh., 37:109, 1918.

6. Glanzmann, E.: Beitrag zur Klinik, Hämatologie und Pathologie des Syndroms von Waterhouse-Friderichsen, Jahrb. f. Kinderh., 139:49, 1933.

8. Sacks, M. S.: Fulminating septicemia associated with purpura and bilateral adrenal hemorrhage (Waterhouse-Friderichsen syndrome); report of two cases with review of the literature, Ann. Int. Med., 10:1105, 1937.

9. *Kunstadter, R. H.: The Waterhouse-Friderichsen syndrome, Arch. Pediat., 56:489, 1939.

10. Bamatter, F.: Fulminante meningokokkensepsis; zur Aetiologie des Syndroms von Waterhouse-Friderichsen, Jahrb. f. Kinderh., 142:129, 1934.

11. Snelling, C. E. and Erb, I. H.: Hemorrhage and subsequent calcification of the suprarenal, J. Pediat., 6:22, 1935.

12. Boone, J. T. and Hall, W. W.: Meningococcal septicemia, U. S. Naval Medical Bulletin, 33:446, 1935.

13. Carey, T. N.: Adrenal hemorrhage with purpura and septicemia (Waterhouse-Friderichsen syndrome) with recovery; case report, Ann. Int. Med., 13:1740, 1940.

*Extensive bibliographies.

DISCUSSION

Dr. Edwin H. Lawson (New Orleans): As the discussion of a paper so complete and so well presented as this essay of Drs. Moss and Schenken with the idea of presenting any additional information is almost impossible, it appears to be more appropriate at this time to stress certain points outlined in the paper.

Dr. Schenken has presented two cases of meningococcal meningitis which illustrate two of the four possible routes of transmission of the meningococcus from the nasopharyngeal mucosa to the meninges. The first illustrated the blood-borne type of infection in which the bacteria enter the blood stream and are transported by this means to the meninges. This Dr. Schenken has proved by the demonstration of the organism and the resulting inflammatory process in the choroid plexus. The second case illustrates the transmission of the organism by way of the cribiform plate as demonstrated by Dr. Schenken in the sections removed from the cribiform plate which show the acute inflammatory process characteristic of such infection and the extension from this area to the meninges. The remaining two routes of extension are: (1) by way of the perilymphatic space around the olfactory nerve, and (2) by way of the ethmoid sinus. Although the routes mentioned above agree with the opinion of the majority of investigators along this line, some authorities still ascribe the route of extension as by way of the blood stream only.

Another point brought out by Dr. Schenken which should be emphasized is the fact that the diagnosis of meningococcal septicemia may be made in some instances by the examination of the blood smear for the presence of micro-organisms, inasmuch as in some cases of this disease the micro-organisms are so numerous that they may be demonstrated in a blood smear by use of an ordinary stain. The micro-organism may also be demonstrated in the material obtained from the skin lesions which occur in some cases of fulminating meningococcal septicemia.

The authors have mentioned the appearance of hemorrhage in the adrenal glands. The cause of such hemorrhage has been determined to be either an embolus of micro-organisms which might have located in a particular point in the capillaries of this organ or to the increased fragility of the capillaries causing a rupture at that point. In 1925 Dr. Loeber and I presented a case of hemorrhage into the adrenals of a newly born infant. In this particular case there was no evidence of septicemia, so that the cause of rupture of the capillaries was considered to be due to increased fragility of those blood vessels. The differentiation of these two particular features of this disease is still an unsettled question.

Dr. John H. Musser (New Orleans): One of the characteristic features of acute fulminating meningitis is the occurrence of purpura. Almost invariably, the children who go into the contagious disease division of Charity Hospital, and who die very promptly as a result of meningitis, all have severe purpura. Irrespective of what causes the purpura, in any acute infectious disease this is always a grave symptom. Furthermore, it seems to me that possibly in these two cases of Dr. Schenken, it was coincidence rather than anything else, that the purpuric lesions or the hemorrhage should happen to occur in the adrenal. As a matter of fact, as Dr. Schenken says, hemorrhages were not only located in the skin, but may have been here, there, and everywhere, in the parenchymatous organs. So, it is not quite clear whether it was coincidence, or whether it was some other factor, which was responsible for the involvement of the adrenals.

Dr. John R. Schenken (In conclusion): I did not think I had time to show the lantern slides. If I have time, I have only four I would like to show. (Showing slides) This is a photograph of the skin showing the diffuse cyanotic appearance of the skin, in addition to the purpuric lesions, most marked over the face, neck, and upper thorax.

This slide shows the suprarenal glands from both cases. Note the diffuse hemorrhage throughout.

This slide shows the meninges from the second case; note the definite cellular infiltration into the tissues, but none in the subarachnoid space.

The next slide shows the choroid plexus. Note the infiltration of polymorphonuclear leukocytes beneath the epithelium.

I am perfectly in agreement with Dr. Lawson that the cause of the hemorrhage in the skin may be an embolic phenomenon, but if I should venture an opinion on it, it seems to me, because of the definite evidence of injury to the endothelial cells that we see, that it is equally likely to be due to a local toxic injury to the endothelium, allowing for diapedesis of the red blood cells. I do not know what part a change in the fragility of the red cells, or a change in the bone marrow as far as the reduction in the number of platelets, may play.

Relative to the coincidence of hemorrhage in the suprarenals in these cases, I do not think I can answer Dr. Musser's question. It seems rather strange to me that the suprarenals should be picked out as the one organ in which considerable hemorrhage might occur. I grant also that the organ is rather small, but at the same time, unless we have been missing it routinely, organs of similar size, such as the hypophysis, should occasionally be involved as well as the suprarenals. But I do believe that the destruction of the suprarenals does add to the toxemia the effects of sudden acute suprarenal insufficiency.

THE MORTALITY OF ACUTE APPENDICITIS

A CONTINUING STUDY (4,207 CASES) FROM THE CHARITY HOSPITAL OF LOUISIANA AT NEW ORLEANS*

FREDERICK FITZHERBERT BOYCE, M. D.
NEW ORLEANS

The present contribution is the eighth of a series which I have prepared personally, or in the preparation of which I have done the chief work, concerning acute appendicitis at Charity Hospital of Louisiana at New Orleans. The last of these papers, which was published in 1936, dealt with 2,715 surgical cases, and the present contribution brings to 4,207 the number of cases thus analyzed over the nine-year period ending April 1, 1939.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

I think no apology is needed for the presentation of another study of this sort. The statistical method may be crude, the hospital records may be inaccurate and inadequate, and it may not always be easy to evaluate fairly material for which one is not oneself entirely responsible. But when all is said and done, the fact remains that the best method of studying acute appendicitis is by the determination of the case fatality.

Certain other points should also be stressed. For one thing, from the time this study was undertaken, in 1933, the repeated analyses have been made by the same persons, and whatever the factor of error due to the personal equation may be, it has at least been kept constant throughout. For another thing, the true mortality of acute appendicitis is the general hospital mortality, not the mortality of individual surgeons, which does not in any sense portray the true status of this disease. Finally, the mortality of this large public institution introduces no factor of exaggeration. A few years ago, when acute appendicitis was studied in the various hospitals of New Orleans, the mortality at Charity Hospital was found to be actually lower than the mortalities at several private hospitals.

The analysis with which I have occupied myself for the last several years concerns only acute appendicitis. It does not include any patient in whom, even though an emergency operation was performed, the disease proved to be not acute. I might say in passing that there should be no condemnation but only praise for surgeons who honestly err in operating for supposed acute disease. Their death rate will be considerably lower than the death rate of the surgeons who defer operation until the diagnosis of the disease is established—frequently by the development of gangrene, rupture and peritonitis.

More important, this series includes no chronic and no recurrent cases. Without entering into the question of whether or not chronic disease exists, such cases have nothing to do with acute appendicitis. For years we have been making the point that their inclusion in the statistics of the acute disease gives an entirely false idea of the situation, and is at least partially responsible for the complacency with which both lay and professional persons are prone to regard acute appendicitis. It is surprising to find how often surgeons who should and do know better are following this practice. I was happy to observe that the eminent statistician, Frederick L. Hoffman, in commenting upon our last report, took exactly the position that we did: Acute appendicitis is a public health problem, and the statistics of the acute and chronic varieties should never under any circumstances be discussed together.

MORTALITY ACCORDING TO PATHOLOGIC TYPES

In the 2,715 cases of acute appendicitis which we had accumulated for the six year period ending April 1, 1936, there were 157 deaths, 5.8 per cent. In the 1,492 cases which occurred in the three year period ending April 1, 1939, there were 79 deaths, 5.3 per cent. Even a fractional improvement in mortality in so common a disease as acute appendicitis results in the saving of a number of individual lives, but from the broader aspects so slight an improvement over a three year period is very discouraging. The mortality for the whole group of 4,207 cases was 236, 5.6 per cent.

A comparative study of the two series reveals some rather puzzling facts. The proportion of acute and suppurative cases in the combined series was almost 45 per cent of the total (1,890 of 4,207 cases). Since the chief method of reducing the mortality of acute appendicitis lies in increasing the proportion of cases in this particular group, it was gratifying to find that the proportion of 41.5 per cent in the first series (1,137 of 2,715 cases) had risen to 50.4 per cent in the second (753 of 1,492 cases). It was disturbing, however, to find that the mortality of 0.34 per cent for this group in the first series (five cases) had risen to 1.59 per cent (12 cases) in the second series, more than four times as high.

It is not utopian to conceive of a day in which gangrene and rupture will be considered complications of acute appendicitis rather than integral parts of the disease, but for the present they must be discussed on the latter basis. In the whole group and in the first and second series the proportion of cases of gangrenous appendicitis was practically the same, just over a quarter of the total (1,096 of 4,207 cases, 711 of 2,715 cases, and 385 of 1,492 cases respectively). The mortality for the whole group was 5.47 per cent (60 cases), but again there was a disturbing rise from the mortality of 3.1 per cent in the first series (22 cases) to 9.87 per cent in the second series (38 cases).

Undoubtedly a portion of the mortality which in the first series was due to rupture in the second series was due to gangrene, for in the second series there was a striking decrease in both the incidence and the mortality of ruptured appendicitis. The proportion of ruptured cases in the combined series was 21.3 per cent (989 of 4,207 cases) and the combined mortality was 13.8 per cent (124 cases). In the first series rupture represented 23 per cent of the cases (615 of 2,715 cases) and the mortality, because of the fact that more than a third (244 cases) were associated with generalized peritonitis, was 17.2 per cent (112 cases). In the second series the proportion of ruptured cases had fallen to 19 per cent (283 of 1,492 cases) and the mortality had fallen to 4.17 per cent (12 cases), apparently because less than 20 per cent (59 cases) were associated with generalized peritonitis.

Although the decrease in the incidence of generalized peritonitis is undoubtedly the most hopeful trend in the second series of cases, it cannot be accepted entirely at its face value. We have studied only the surgical cases of acute appendicitis, it is true, but we have examined the non-surgical cases treated conservatively, and we have studied critically every non-surgical death which occurred in the entire period of the analysis. Clearly part of the reduction in the mortality of ruptured appendicitis in the second series is due to a more judicious use of conservative therapy in selected cases. On the other hand, it is unfortunately impossible to escape the conclusion that part of the increase in the number of non-surgical deaths, which were roughly the same in the second three year period (50 cases) as in the first six year period (51 cases), was due to an injudicious use of this type of therapy.

It would be both unfair and foolish to say that certain patients might have lived if they had been operated on rather than treated conservatively. It can be said in all fairness, however, that the second group of deaths seems to include a larger number of cases than the first group in which, on the surface, conservative therapy seems to have been employed on somewhat doubtful indications.

Furthermore, the figures for appendiceal abscess, in addition to raising the question as to whether this termination is a consummation so devoutly to be wished as some of the recent literature would seem to suggest, also raises the question as to whether conservative therapy may not, perhaps, be in danger of being carried too far. Abscess occurred in 7.6 per cent of all cases in the combined groups (323 of 4,207 cases) and was attended with a mortality of 10.8 per cent (35 cases). It represented 9.3 per cent of the cases in the first series (252 of 2,715 cases) and was attended with a mortality of 7.1 per cent (18 cases). In the second series the incidence had fallen to 4.7 per cent (71 of 1,492 cases) but the mortality had risen to 23.9 per cent (17 cases). Furthermore, in the second figures are included four cases of cul de sac abscess, another outcome usually regarded as favorable, which were treated by colpotomy or proctotomy, with a mortality of precisely 100 per cent.

In view of the implied criticism of conservative therapy just expressed, it might be well to make clear my views concerning it. I regard it as an extremely valuable method in selected cases of ruptured appendicitis with peritonitis if it is used, as an English surgeon expressed it, "on the threshold of the operating room." I think I would add to that precaution, if it is also used with one's heart in one's mouth. It is not the treatment of the early case of acute appendicitis, though in certain fatal non-surgical cases which I examined it was employed as early as 24 hours after the onset of symptoms. A very fair proportion of the fatal non-surgical group, furthermore, was made up of young children, individuals advanced in years, and negroes, in all of whom I believe this method should be used with the greatest caution, if at all. The same holds for its use in pregnant women. Finally, in spite of the extreme value of this method in selected cases, I share the view expressed by Ochsner and others, that immediate operation in all cases of acute appendicitis, regardless of when the patient is seen or what complications may be present, will result in fewer fatalities in the hands of the general run of surgeons than will the practice of conservative therapy by men who do not thoroughly understand its limitations and implications.

MORTALITY ACCORDING TO AGE GROUPS

It is scarcely necessary to labor the point that the mortality of acute appendicitis with and without peritonitis is as far apart as the poles. For the combined series, exclusive of abscess cases, the mortality without peritonitis was 1.7 per cent (53 of 3,105 cases) and with peritonitis was 25.7 per cent (148 of 575 cases). The mortality for individuals under 12 and for individuals between 13 and 39 was practically the same without peritonitis, slightly over 1 per cent, and with peritonitis, slightly over 24 per cent. In the group over 40 years of age, however, the mortality without peritonitis was 8.2 per cent (22 of 252 cases) and with peritonitis was 31.2 per cent (38 of 119 cases). The striking feature of this special analysis, aside from the shocking mortality in individuals advanced in years, is that peritonitis in the middle years was present in less than 10 per cent of all cases (262 of 3,048), whereas it was present in more than 25 per cent of the cases under 12 years of age (194 of 738 cases) and in almost 30 per cent (119 of 421 cases) in individuals over 40 years of age.

Both the high incidence of peritonitis and the high death rate furnish proof of the extreme seriousness of acute appendicitis at the extremes of life. The collected figures for both series show that the incidence of the disease below 12 and over 40 years of age was just over a quarter of the total cases (27.5 per cent, 738 children, 421 adults over 40 years of age), whereas the deaths in these age groups represented considerably more than half of the total mortality (53.9 per cent, 62 children, 65 adults over 40 years of age). There was some improvement in the death rate in children under 12 years of age in the second series (7.1 against 9.0 per cent), but the improvement in the middle years was merely fractional (3.5 against 3.6 per cent), and the mortality in the group over 40 years of age had actually risen in the second series, albeit fractionally (15.9 against 15.2 per cent).

MORTALITY IN RELATION TO PURGATION

The habit of purgation persisted in the second series, although for some reason the mortality was considerably lower in connection with it (27 of 418 cases, 6.4 per cent, as compared with 76 of 795 cases, 9.5 per cent). The mortality of repeated purgation in the combined series was 16.2 per cent (42 of 260 cases). Physicians, regrettably, are still ordering purgatives for abdominal pain, and to that habit can be attributed a mortality of 26 per cent (13 of 50 cases) in the combined series. The second series, moreover, contained the happily unique record of a physician who diagnosed the patient's trouble as acute appendicitis and forthwith ordered a dose of salts.

On the other hand, it was encouraging to note in this series the increasing number of physicians who warned their patients against food and purgation and sent them into the hospital immediately the diagnosis was made or suspected. This trend in the new series is both outstanding and hopeful. Some mention should certainly be made, also, of the single druggist who acquired merit by doing precisely the same thing.

MORTALITY ACCORDING TO RACE

The mortality for white patients in the combined series was 3.36 per cent (142 of 3,245 cases) and for negroes 9.77 per cent (94 of 962 cases), the improvement for both races in the second series being merely fractional. Negroes, it will be noted, furnished less than a quarter of the total cases (22.8 per cent) but well over a third of the mortality (39.8 per cent).

Some explanation for the lack of improvement in the negro mortality lies in the fact that in the second series 38 per cent of the negro patients (135 of 356) took purgatives, against only 25 per cent (285 of 1,136) of the white patients. Another explanation lies in the fact that almost half of the white patients (47.1 per cent) were admitted to the hospital within the first 24 hours of illness, against just over a third of the negro patients (34.4 per cent). These comparative figures explain why roughly 62 per cent of all cases of appendicitis in the negro had passed beyond the simple acute or acute suppurative stage when the patients were first seen, as compared with 45.6 per cent in the white patients. There is also no doubt in my mind, regardless of these explanations, that acute appendicitis is a more severe disease in the negro, perhaps because it is acquired.

MORTALITY ACCORDING TO OPERATIVE PROCEDURE

The mortality of simple appendectomy was practically the same in both series, 1.3 and 1.4 per cent respectively. The mortality for other operations, however, varied widely, in correspondence with the differences in types of pathology and the resulting mortalities, upon which I have already commented. The mortality for appendectomy and drainage in the first series was 6.0 per cent (17 of 284 cases) but for the second had risen to 13.4 per cent (31 of 231 cases). The mortality of incision and drainage in the first series was 13.9 per cent (19 of 137 cases) but for the second had risen to 27.5 per cent (16 of 56 cases).

Enterostomy in the second series was apparently reserved for the most seriously ill patients, for it was performed only 29 times, with a mortality of 38.6 per cent (11 cases), as compared with 371 times in the first series, with a mortality of 22.6 per cent (84 cases). Whether the mortality in the second series would have been lowered by a more extensive use of this auxiliary procedure it is not possible to say.

In the combined series 20 cases were treated by colpotomy or proctotomy alone, with 10 deaths, a mortality of 50 per cent. Such statistics, it must be said again, do not encourage us to regard the formation of cul de sac abscesses as the solution of the problem of ruptured appendicitis with generalized peritonitis.

OTHER CONSIDERATIONS

It is not possible, in such a contribution as this, further to analyze statistically the data in these cases, but certain general statements can be made. The postoperative care of appendiceal cases at Charity Hospital has usually been very good, and the addition of constant suction or intestinal decompression to the regimen, as well as to the regimen of conservative therapy, was a striking improvement in the second series. Perfringens serum and sulfanilamide therapy were used too infrequently to permit conclusions. Bower's work with the former, and the various reports already in the literature concerning the latter, suggest that later reports from Charity Hospital will show a wider and more profitable use of these measures.

A survey of the records makes it very clear that he is a bold man, and not a very prudent man, and, if he is a teacher or writer, a rather dangerous man who generalizes about acute appendicitis. The average leukocytosis, for instance, may be between 10,000 and 15,000, but less than one-third of these cases fell into that group, and the range was from 3,200 to 43,200.

Fever was listed as an invariable accompaniment of acute appendicitis by the great John B. Murphy, who seems not to have escaped the trap of generalizations. But 883 of the patients in this series, nearly 21 per cent of the total, had no fever on admission, and almost exactly the same number (884) had pulse rates below 80 on admission. The 21 deaths in the fever-free group, and the 15 deaths in the group with normal pulse rates, strongly suggest that some physicians, at least, were unwilling to diagnose acute appendicitis until alterations had occurred in these respects.

As for symptoms, the only safe generalization is that pain is practically always present. In these cases it was the first symptom in by far the largest proportion of cases, and it occurred in all locations, including the back, the loin, the scrotum and the leg. Nausea and vomiting, although they were very frequent first symptoms, were not present at all in a fair number of cases. Other first symptoms included such atypical ones as diarrhea, urinary disturbances, headache, vertigo, malaise, and syncope. The onset occurred during sleep, at work, at all sorts of play, during the act of defecation, during menstruation, after tonsillectomy and after cataract extraction, after vaccination, after the extraction of teeth, and in the course of malaria, paratyphoid and typhoid fever, pneumonia, influenza, measles, and acute pelvic inflammatory disease.

The onset occurred following dietary indiscretions in a small but highly fatal group of cases. It followed previous incision and drainage of abscesses, or the previous conservative treatment of peritonitis, in another small group of cases, the death rate in which emphasizes the importance of urging prompt interval appendectomy upon patients who have been so treated. Finally, the small group of cases must be mentioned in which the taking of a purgative immediately preceded or was associated with the onset of symptoms, a situation obviously fraught with serious possibilities.

Bower's studies on the importance of the *Clostridium welchii* and Wangensteen's demonstration of the obstructive character of acute appendicitis are the only really significant contributions to the subject of acute appendicitis in recent years except for the work of Bower and his associates in Philadelphia. That is the most important contribution of all, for it shows what can be achieved by a continuing campaign of public education. For that matter, Hoffman, in his yearly analysis of the 1936 appendicitis death rate, attributed the decrease in New Orleans to the brief educational campaign conducted in that year, which I had the privilege of directing in the absence of the appointed chairman from the city during its active portion. Like the Philadelphia campaign, the New Orleans campaign concentrated on two points, abstinence from purgation in abdominal pain, and prompt operation in acute appendicitis, before rupture occurs.

Some special comment must be made concerning the unruptured appendix. Operation on the simple acute or acute suppurative appendix is the desideratum. Operation on the gangrenous appendix, even though it is intact, is not in the same category of safety. The figures from Charity Hospital make it abundantly clear that there is no warrant for taking a lighthearted view of gangrene in appendiceal disease, for the mortality in such cases is very far from negligible.

THE PRESENT STATUS OF APPENDICEAL DISEASE

I am not sure that I am willing to accept Bower's suggestion, regardless of the authority with which he speaks, that medical men cease to write and medical editors cease to accept articles on acute appendicitis, and that all our attention, instead, be concentrated on rupture and peritonitis. That peritonitis is the cause of most deaths in this disease there can be do doubt. But my own opinion is that one of the reasons for that situation is not that too little attention is paid to peritonitis but that too little is paid to acute appendicitis, *per se.* The paradox still exists that peritonitis develops because physicians fail to recognize the syndrome of uncomplicated acute appendicitis.

For that reason, Fitz's suggestion is timely, that acute appendicitis be taught in the courses in medicine as well as in the courses in surgery, on the ground that medical men rather than surgeons hold the clue to the solution of the problem. In the same connection, I am inclined to suggest the scrapping of most of the descriptions of acute appendicitis in most of even the modern textbooks. If they do not actually give the impression that gangrene, rupture and peritonitis form part of the initial syndrome of the disease, they are so languid, so unemphatic, that the student gets no idea whatsoever of the urgency of acute appendicitis. I was enormously amused by the comment of Dr. J. D. Rives to the effect that the description of acute appendicitis in the textbook then in use in the L. S. U. Department of Surgery sounded like "something that might have happened to King Tut." The comment is less funny, however, when one recollects that from such descriptions medical students are getting their first introduction to the most frequent of all surgical diseases.

Loveland, writing in the Yale Journal of Biology and Medicine, said that Fitz in 1886 had told medical men nearly everything of importance they were to learn in the next half century, and even down to the present time, about acute appendicitis, and it is doubtful whether modern surgery has yet caught up with those ideas: immediate operation, no purgation, watchful waiting in neglected abscesses, and interval appendectomy. That surgery is not equal to the situation I doubt. The solution, I think, lies rather in the continuing and constant education of the public by the medical profession. Anyone who doubts that conclusion need only study the records of acute appendicitis in the Charity Hospital of Louisiana at New Orleans.

SUMMARY AND CONCLUSIONS

1. In this, the eighth of a series of studies on acute appendicitis at Charity Hospital of Louisiana at New Orleans, the number of cases analyzed for the nine year period ending April 1, 1939, has been brought up to 4,207.

2. A study of the total series, and a study of the last series as compared with the (cumulative) former series, show a practically stationary mortality, such improvement as has occurred in certain regards being offset by regression in other regards.

3. The mortality for the second series continued unduly high for children under 12 years of age, adults over 40 years of age, and negroes. The mortality was very high when purgatives were taken, and inordinately high when they were repeated.

4. Certain statistics in the second series introduce the question as to whether conservative treatment was used wisely in all cases.

5. A survey of the records from the standpoint of symptomatology, pulse rate, temperature, leukocytosis, mode of onset and similar factors makes it clear that generalizations on any of these subjects are extremely unwise.

6. The conclusion is inevitable that only by a continuing campaign of public education, based on prompt operation and abstinence from purgation in abdominal pain, can the mortality of acute appendicitis be reduced to a reasonable figure.

DISCUSSION

Dr. Oscar W. Bethea (New Orleans): I do not think that there is any doubt that one of the most impressive pieces of work done in New Orleans has been the study of appendicitis by Dr. Boyce and his associates during the last few years. Personally I would say they have largely revolutionized my ideas of this condition. The emphatic fact that they have demonstrated is the value in acute appendicitis of early operation. The surgeon is held responsible for unfavorable results, yet the surgeon is not to blame except in a fairly small percentage of cases. The patient is usually seen first by an internist, pediatrician, gastroenterologist, general practitioner or some one in one of the related groups. I can only contribute, I believe today, by making some apology for the medical groups that have the responsibility of the case in the first few hours. One of the greatest difficulties that we experience is making a tentative diagnosis so that the preliminary disposition of the patient can be made, and a surgical consultant seen. It has been said that medicine is part science, part skill and part salesmanship. One difficulty encountered in medicine is selling the patient and the patient's family the idea of going to the hospital. Even at the suggestion of possible appendicitis we are up against an antagonistic reaction on the part of the patient and his family in many instances. The doctor is told that he is accustomed to having these attacks. We are told that "Dr. Smith used to come in and give him a prescription and he was well the next day." "Just last week a man working in the office had an attack just exactly like this and took a dose of salts and was back at work the next day." We have to sell them the idea of going to the hospital.

One thing I would like to emphasize is that medical students have been impressed with the idea that there are four symptoms; pain, tenderness, fever and nausea and, to a less extent, changes in the blood picture. Usually the patient has to be moved to the hospital before we can demonstrate the last. I would like to mention a point stressed by Dr. Coleman, that increase in pulse rate is definitely suggestive of a grave condition. I remember that he would refuse to take the responsibility of a case that was not immediately removed to a hospital if there was a marked increase in pulse rate. Another thing is temperature. This is not usually taken correctly. I use an accurate thermometer, and leave it under the tongue for five minutes and watch the lips of the patient during this time. If the patient talks he lets in cool air which prevents a correct reading.

I believe that the family physician, the internist, or whoever sees the patient first should share in the responsibility of the operation in those cases where there is an element of doubt; convincing the family that even though this may be a normal appendix, the patient requires surgical investigation.

In closing, I would say that I believe the internist may have a field of usefulness in deciding upon the anesthetic and the status of the surgical risk from the standpoint of the heart, lungs and vascular apparatus. The internist is also sometimes of service in watching the progress of some patients postoperatively especially when there is a circulatory or a respiratory handicap.

Dr. D. I. Hirsch (Monroe): One thing that impressed me was the remarkably low mortality in cases of acute appendicitis at the Charity Hospital in New Orleans. It is probably the lowest of any general hospital in the United States.

The one thing about appendicitis is this: Appendicitis is a surgical condition at all times. Another thing that tends to increase the mortality is the difficulty in diagnosis of appendicitis. It is the most common surgical condition we have and at times the most difficult to diagnose. I have observed cases of appendicitis with abscess formation in which the patients were not sick. In one case of abscess the boy had never been confined to his bed.

In order to appreciate the conditions that are taking place in the abdomen we should have a complete understanding of the pathology that exists. Of course we all know that when the appendix becomes gangrenous or ruptures the pain does cease for a while but there are so many angles to the diagnosis and the time is too short to discuss them. We can only speak of generalities.

Another thing I think should be mentioned is the use of opiates while attempting to make a diagnosis. Sometimes the pain is not so severe and we tend to relieve the patient with a small hypodermic and the first thing we know we find the patient has peritonitis. Surgery adds an infinitesimal amount to the mortality of appendicitis but delay is the serious thing.

In closing I would like to say that besides the educational features for the public, I think we members of the profession need to be educated too. I do not think there has been enough emphasis placed upon the seriousness and difficulty in diagnosing appendicitis.

I do not have time to discuss treatment. There is no question about immediate operation in acute appendicitis. Another thing, there is no doubt in my mind that surgery or improper technic or too much surgery at times will add to the mortality. There is a place in cases of appendicitis for conservative surgery. You can sometimes drain and if necessary go back later and remove the appendix. I think all persons with obscure abdominal pain which persists for six hours, regardless of temperature or laboratory findings, that cannot be reasonably accounted for should have the abdomen opened.

Dr. Alton Ochsner (New Orleans): I do not think that Dr. Boyce need be apologetic for bringing this subject to our attention. There are a few points which I should like to make. One is that in appendicitis the mortality rate in the two extremes of life, as he emphasized, probably is not entirely due to the lack of resistance in the young and elderly. One factor is that the diagnosis is more difficult in these cases.

I should like to say a word about conservative treatment. There is no such thing as conservative treatment of appendicitis. Dr. A. J. Oschner never practiced conservative treatment of appendicitis, but did use it in appendiceal peritonitis. There is only one treatment of appendicitis and that is removal of the appendix while the infection is still confined to it. The diagnosis of appendicitis is not always easy, however. At one time I was critical of myself if I operated upon a patient and found a normal appendix, but am no longer so. There is difficulty in making diagnosis. I think if a man is honest in his attempt to make a diagnosis in a suspected case and if he is reasonably certain by ruling out other lesions which might account for the symptoms and feels the patient has appendicitis, the patient should be operated upon. If one will contrast the mortality and morbidity of cases of ruptured appendicitis with the safety of appendectomy not associated with rupture, the justification of such a conclusion is evident. The important thing brought out today is insistence upon early operation.

In regard to therapy, advances have been made. One is the use of sulfanilamide in cases of appendiceal peritonitis, which we have used with good results. The mortality in these cases will decrease.

Another point is the use of adrenal cortical extract when the patients have severe toxemia. Some times adrenal cortical deficiency is responsible for death. It is surprising how much better these patients get along with the introduction of the extract.

THE MANAGEMENT OF THE THIRD STAGE OF LABOR*

RUPERT E. ARNELL, M. D.†
WILLIAM F. GUERRIERO, M. D.†
AND
ROLAND F. PHILLIPS, M. D.†
NEW ORLEANS

The rather general belief that the successful termination of the second stage of labor is equivalent to the successful termination of the entire process of parturition is by no means justified. As a matter of fact, more serious complications arise during the third stage than during the other two stages combined. Furthermore, a high percentage of these complications is due to mismanagement. The normal mechanism of the third stage is frequently disturbed by attempts to hasten its conclusion. Almost as frequently a persistent "hands-off" policy in the presence of abnormalities which demand intervention also results in catastrophe.

SEPARATION AND EXPRESSION OF THE PLACENTA

For the intelligent management of the third stage of labor, the immediate recognition of complete placental detachment is essential. Although no sign is infallible, when uteroplacental separation has occurred and the placenta has descended into the lower uterine segment, the process is likely to be manifested by the following signs: elevation of the fundus; bulging in the suprapubic region; flattening of the uterus; advancement of the cord; failure of the cord to retract on pressure over the suprapubic region; absence of fundal impulse in the cord; a slight spurting of blood.

Another important consideration is that the process of placental detachment takes place much more rapidly than we formerly believed. In a recent analysis of 1,000 consecutive cases of our own, it was found that in 62 per cent the duration of the third stage was less than five minutes. Other data concerning the rapidity of placental separation have been accumulated by clinical observation during cesarean section, by soft tissue roentgenology, and by hysterotokographic tracings.

Premature attempts to express the placenta before separation has occurred merely complicate the normal mechanism of detachment and should be avoided. Indeed, such procedures as kneading, squeezing and massaging the abdomen in an attempt to hasten placental separation are likely to result in partial detachment and more or less profuse bleeding.

Once the placenta is detached, however, it should be expressed at once if it is not expelled spontaneously. The detachment of the placenta is a natural mechanism, but delivery is very seldom a spontaneous process, particularly with the modern tendency to use analgesia or anesthesia in most cases. When spontaneous expulsion is impossible, some method of expression must be used. If the patient is conscious and cooperative, she may force the placenta out by her own efforts while the physician grasps the recti muscles in the midline at the umbilicus (indirect expression). If this method fails, the fundus of the uterus may be grasped firmly and the placenta delivered by gentle squeezing and downward pressure in the axis of the birth canal (simple expression). By the Credé technic, which should be used only if repeated attempts at simpler methods have failed, and which is applicable to both the attached and the detached placenta, the placenta is literally squeezed out of the uterus as if it were the pit of a cherry.

Certain precautions are necessary, whatever mode of expression is used. In the first place, the manipulation should not be undertaken until the uterus is firmly contracted. In the second place, too forceful downward pressure should be avoided. Finally, the uterus should be carried up out of the pelvis by suprapubic pressure after the placenta has been delivered, because uterine prolapse interferes with the normal mechanism of retraction and contraction.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the Department of Obstetrics and Gynecology of the School of Medicine of Louisiana State University and the obstetric services of Charity Hospital of Louisiana at New Orleans.

Following its expression, the placenta should be carefully inspected to make certain that no part of it remains in the uterus, this being a simple precaution which will avert many anxieties in the puerperal period. Another reason for careful examination is to make certain that an accessory lobe or a placenta succenturiata is not present. Membranes which have been incompletely expressed may be ignored unless bleeding is profuse, but placental tissue must be removed immediately, to forestall hemorrhage and infection; secondary removal is an extremely hazardous procedure.

MANUAL REMOVAL OF THE PLACENTA

Manual removal of the placenta is occasionally necessary, but it is a formidable procedure at best and is the least desirable method of terminating the third stage of labor. Rigid standards should therefore be set up concerning both the indications for and the technic of the procedure.

Manual removal of the retained placenta should not be resorted to, in the absence of specific indications, until it is clear that simple methods of expression will not succeed. Credé expression under anesthesia is often effective if oxytocics are administered before the attempt is made. Even an hourglass contraction of the uterus often relaxes following the administration of an anesthetic or of adrenalin (minims 7), atropine (gr. 1/150), or nitroglycerine (gr. 1/100). On the other hand, it must not be forgotten that while these attempts are in process, serious hemorrhage may occur, usually due to partial separation of the placenta. Furthermore, violent manipulations are extremely dangerous, for they may traumatize the uterine tissues or even result in complete uterine inversion.

There are three major indications for manual removal of the placenta, namely, hemorrhage, retention of the placenta, and the desire or necessity for manual exploration following difficult delivery, in order to complete the labor without delay or to rule out uterine rupture. Often more than one of these reasons is effective.

Free bleeding is the most frequent indication for manual removal of the placenta, though all bleeding during the third stage of labor is not necessarily of placental origin. If the placenta is still firmly attached and if the uterus is firmly contracted, hemorrhage is usually due to lacerations of the parturient canal. If, on the other hand, the uterus is soft and boggy, the bleeding is probably due either to partial separation of the placenta or, less frequently, to its retention in the uterus after complete separation. Under these conditions the large sinuses of the placental site are exposed, and hemostasis does not occur because the mechanism of uterine retraction and contraction is unsatisfactory.

No exact criterion can be set up as to the amount of blood loss which furnishes the proper indication for placental extraction. Bleeding must not be allowed to continue indefinitely, however, and, generally speaking, a loss of 300 c. c., following the failure of attempts at expression of the placenta by simple methods, should be regarded as an indication for the more radical procedure.

When the placenta is not expelled either spontaneously or by some simple mechanical method soon after delivery, a brief period of delay is justified in the absence of free bleeding. If it is still *in situ* at the end of an hour, manual removal should be resorted to, for prolonged retention is not without risk. Deferred removal is often difficult and dangerous because of spastic conditions and contraction rings of the uterus, which are usually found several hours after delivery.

Arrest of the placenta within a tightly contracted cervix is naturally not included in this discussion, for it can readily be removed by the shoehorn maneuver without invasion of the uterine cavity. Furthermore, some distinction should be made between the attached and the detached retained placenta. Conservative therapy is justified in certain cases of detachment. Our own experience has been that soft tissue roentgenology may be helpful in differentiating between detached and attached retained placentae, and we should be inclined to recommend that this diagnostic aid be employed routinely when it is at hand.

The patient with a retained placenta should never be left unattended, either in the hospital or the home, for fatal hemorrhage may occur in a very short period of time. In prolonged placental retention with infection, the best plan is probably to omit all attempts at manual extraction of the placenta and resort immediately to hysterectomy.

The wisdom of exploring the uterus, to rule out laceration or rupture following such traumatic procedures as a difficult forceps delivery, version and extraction, or craniotomy, is so obvious as to need no discussion.

A study of the obstetric records at Charity Hospital of Louisiana for the decade ending January 1, 1940, supports the point of view we have advanced concerning manual removal of the placenta. During the 10 year period the procedure was resorted to in 152 cases, one in every 250 viable deliveries. Free bleeding was an indication in 56 per cent of the group, retention of the placenta in 20 per cent, and exploration of the uterus following difficult labors or operative deliveries in 24 per cent. In four cases of the latter group rupture of the uterus was thus identified, and further proof of the wisdom of such exploration is found in the fact that during the same period of time uterine tears remained undiagnosed in seven fatal cases in which digital examination of the uterus was omitted. Death occurred in 10 of the 152 cases, 6.5 per cent, in which manual removal of the placenta was undertaken, a high death rate which is partially due to the basic pathology but which would be justified, regardless, by the fact that death also occurred in 13 cases during the decade studied in which a policy of non-intervention was practiced in the presence of placental retention.

Manual removal of the placenta, as has been pointed out, is a major obstetric operation. Asepsis must be meticulous, and it is well to change the gown, gloves and linen which have been used during delivery. In cases in which manual removal is likely to be necessary, it is best not to repair episiotomies and other lacerations prior to delivery of the placenta, for the repairs may be undone during subsequent manipulations.

Anesthesia is essential. One hand supports the uterus and forces it into the pelvis by pressure on the abdomen. The other hand, well lubricated, is introduced into the amniotic sac and follows the cord to the site of the insertion of the placenta. All manipulations are conducted within the sac, and the hand is not withdrawn until the entire operation is completed. The placenta is slowly peeled off and removed, together with the membranes, the tissues then being examined carefully to make certain that the removal has been complete. The use of ergotrate by the intravenous route usually obviates the necessity for uterine packing and thus lessens the possibilities of infection.

THE USE OF OXYTOCIC DRUGS IN THE THIRD STAGE OF LABOR

Before proceeding to the discussion of pathologic abnormalities of the third stage of labor, the use of oxytocic drugs must be briefly mentioned. Textbooks of obstetrics are vague and indecisive on this point, and widely divergent views seem to be held concerning their value. With the idea of securing a cross section of American obstetric opinion, a questionnaire was sent to a large group of representative obstetricians, many of whom control important clinical services and direct teaching departments of obstetrics in important medical schools (table I). The following discussion therefore represents not only our personal experiences but the experiences of a significant group of American obstetricians, 126 of whom replied to our questionnaire.

TABLE I

QUESTIONNAIRE ON USE OF OXYTOCICS
ADVOCATE ROUTINE OXYTOCIC

Yes—112 or 88% No—14 or 12%

ADMINISTRATION

Oxytocic	End of second stage No.	End of second stage %	End of third stage No.	End of third stage %	Both No.	Both %	Totals No.	Totals %
1. Ergonovine	21	46	22	48	3	6	46	36
2. Pituitary extract	28	70	10	25	2	5	40	32
3. 1 + 2	Pituitrin		Ergotrate		26	100	26	20
4. Pitocin	3	38	5	62	0	0	8	7
5. 1 + 4	Pitocin		Ergotrate		6	100	6	5
Totals	52	42	37	29	37	29	126	100

We have personally studied the efficacy of various oxytocics by comparisons of results achieved with them in small series of consecutive normal cases in which spontaneous expression of the placenta occurred (table II). Blood losses were determined by an exact chemical-colorimetric method whereby the amount of hemoglobin loss (in grams) in free blood, blood clots, and sponges is converted into cubic centimeters of blood. This is a more exact method of determining blood loss than either clinical estimation, which is usually inaccurate, or volumetric measurement of all fluid lost, which usually includes amniotic fluid and urine as well as blood. Our studies show clearly that the administration of an oxytocic at the end of the second stage of labor shortens the placental stage by half, decreases the blood loss by half, and markedly decreases the danger of postpartal hemorrhage. Our own experience is borne out by the opinion of the obstetricians whom we questioned: 88 per cent of the 126 advocate the routine use of an oxytocic drug at delivery, and 71 per cent prefer to use it at the end of the second stage.

TABLE II
EFFECTS OF OXYTOCIC THERAPY IN THIRD STAGE OF LABOR

	No. of cases	Averages Blood loss—c.c.	Averages Duration in minutes	Complications
No Oxytocic	50	212	8.4	One excessive bleeding
Pituitrin intramuscularly End of 3rd stage	25	198	7.1	One postpartal hemorrhage One excessive bleeding
Pituitrin intramuscularly End of 2nd stage	25	102	4.4	0
Pitocin intramuscularly End of 2nd stage	25	86	3.7	0
Ergotrate intravenously End of 2nd stage	25	54	2.1	One retained placenta
Totals	150	144	5.6	

Some form of ergonovine, usually ergotrate, in dosages of 0.2 mg. (gr. 1/320) was advocated by 61 per cent of the obstetricians questioned, either alone or in combination with other oxytocics. It has been our experience that this particular preparation is extremely effective. It acts within one minute when given intravenously and within two to four minutes when given intramuscularly, the tetanic uterine contractions which result often persisting for more than an hour without intervals of relaxation. It seems to have no detrimental effects on blood pressure, pulse, or urinary output. It has the additional advantage that it can be given by mouth if the patient is awake. We have found ergonovine of distinct value in both the prophylaxis and the treatment of postpartal hemorrhage due to atony, and by using it routinely we have materially reduced the necessity for uterine packing, with the risk of subsequent infection.

Sixty-four per cent of the obstetricians questioned advocated the use of some form of posterior pituitary extract, usually obstetrical pituitrin in 1 c. c. doses, either alone or in combination with other oxytocics, at the end of the second stage of labor, by the intramuscular or subcutaneous route. We have found pituitrin and pitocin to be about equally effective for routine use. These preparations should not be used intravenously, for anaphylactic shock is a distinct possibility when this route is employed. Pitocin should be substituted for pituitrin in patients with hypertension, since pituitrin increases the blood pressure and decreases the urinary output.

In hospital practice an oxytocic may be given intramuscularly as soon as the anterior shoulder is delivered. Our experience has been that this routine shortens the third stage of labor, diminishes blood loss, and is particularly effective in that large group of cases in which the mechanism of the third stage of labor is imperfect because of the modern obstetric practice of sedation, anesthesia, and operative delivery. We also use ergonovine intravenously immediately after the delivery of the anterior shoulder whenever postpartal hemorrhage might be anticipated because of such conditions as prolonged labor, unusually deep anesthesia, a difficult operative delivery, or overdistention and subsequent atony of the uterus because of a large baby, twins, or hydramnios.

Enthusiasm for oxytocic drugs should not blind one to the dangers associated with their use at the end of the second stage, chiefly the possibility of placental incarceration as the result of hourglass or other contraction of the uterus. This danger can be averted by immediate expression of the separated placenta. Particular precautions should be taken in this regard when ergonovine is used intravenously, for under such circumstances its action is very rapid. Generally speaking, when the delivery is conducted in the home the use of an oxytocic should be deferred until after the placenta has been delivered.

Failure of the uterus to respond to one oxytocic is no contraindication to the use of another. Thus in postpartal hemorrhage due to uterine atony, ergonovine may be given intravenously and pituitary extract intramuscularly. Packing will be necessary only occasionally if bleeding is controlled by bimanual compression of the uterus until the effects of the oxytocic drugs are apparent.

THE THIRD STAGE OF LABOR IN THE COMPLICATIONS OF PREGNANCY

Certain abnormalities of pregnancy which may complicate the third stage of labor should be briefly discussed. They include placenta previa, abruptio placentae, placenta accreta, and uterine inversion.

Placenta previa: The management of the third stage of labor is of the utmost importance in patients with placenta previa, since the separation of the placenta from its abnormal site is often incomplete, and improper management may result in additional serious or even fatal blood loss. The best routine is to administer ergonovine (0.2 mg.) by vein as the anterior shoulder is delivered, and to effect delivery within the next 30-40 seconds. Rapid separation of the placenta usually follows at once, and gentle expression can safely be done. If separation and expression do not occur promptly, and if bleeding is at all profuse, manual removal of the placenta should be undertaken without further delay. If bleeding follows completion of the labor in any patient with placenta previa, the lower uterine segment should be investigated immediately, to determine whether lacerations have occurred from the trauma of labor or the operative procedures instituted to control hemorrhage.

Twenty-eight per cent of the 178 patients with placenta previa who were delivered by the vaginal route at Charity Hospital during the last decade required active measures for the control of hemorrhage in the third stage. More than one procedure was necessary in four cases. Manual removal of the placenta was done 14 times, repair of lacerations 20 times, and packing of the uterus and vagina 22 times.

Abruptio placentae: The third stage of labor and the first hours of the puerperium are likely to be the most eventful of the whole course in any case of abruptio placentae. The best routine is to administer a potent oxytocic, preferably ergonovine by the intravenous route, as soon as the delivery of the fetus is completed. In the usual case the placenta is already separated and will promptly be expelled, along with numerous clots of blood. Prompt manual exploration of the uterus should be undertaken in any case in which expulsion of the placenta is unduly delayed.

Hemorrhage is usually controlled by the use of ergonovine in all cases in which the uterine musculature has not been too seriously impaired by hemorrhagic extravasation. If it continues, the uterus should be thoroughly packed with antiseptic gauze, after the placenta has been expressed. Since temporizing is not justified in so serious a complication, the next step, if hemorrhage continues unchecked, should be rapid hysterectomy, following an additional blood transfusion.

In the 186 patients with abruptio placentae who were delivered at Charity Hospital by the vaginal route during the last decade, the placenta was removed manually in nine cases and the uterus packed in 19 others because of continued bleeding after the third stage.

Placenta accreta: Placenta accreta, a complication of pregnancy in which the placenta is adherent to and inseparable from the uterine wall, should be suspected whenever bleeding does not occur in a case of retained placenta. The diagnosis is confirmed by failure to find a line of cleavage when manual removal is attempted. Immediate hysterectomy is the only possible treatment, since the decidua basalis layer is missing and the chorionic villi have invaded the uterine musculature.

The condition is rare. It occurred only three times in the 37,760 deliveries conducted at Charity Hospital in the last decade. One case terminated fatally.

Inversion of the uterus: Since uterine inversion is practically always the result of mismanagement of the third stage of labor, it stands in a different category from the abnormalities which have been discussed. It usually follows violent attempts at expression of the placenta by the Credé method, together with forceful traction on the cord, particularly if the uterus is greatly relaxed. It may also occur during manual removal of the placenta if the patient is under deep anesthesia and the uterus is markedly atonic. In a recent instance, observed at autopsy, a partial placenta accreta was apparently the etiologic factor.

As soon as the accident is discovered, reduction of the inversion should be attempted under anesthesia. If the attempt is successful, the uterus and vagina are tightly packed with sterile gauze, which should remain in place for 24 hours. If vaginal reduction fails, abdominal reduction or abdominal or vaginal hysterectomy should be resorted to without delay.

Three patients with acute inversion of the uterus were observed at Charity Hospital during the last ten years, two of whom died.

THE THIRD STAGE OF LABOR IN CESAREAN SECTION AND ABDOMINAL PREGNANCY

The management of the third stage of labor in patients delivered by cesarean section presents a different set of problems. Blood loss can be substantially diminished if the following procedure is carried out: After the head of the infant is delivered 1 c. c. of obstetrical pituitrin is injected directly into the uterine muscle and 0.2 mg. of ergotrate is given intravenously. The remainder of the delivery is slowly effected one or two minutes later. The uterus is thus given time to accommodate itself to the tremendous decrease in the size of the cavity which follows the extraction of the child, and the amount of hemorrhage and the duration of the operation are correspondingly decreased.

Puerperal morbidity in our experience has been substantially diminished by the use of another simple procedure, the placing of a tight sterile gauze intra-uterine pack, one end of which is carried through the cervix to be removed per vaginam after six to eight hours. Cervical drainage is thus established and postoperative morbidity is greatly decreased by the elimination of lochial retention. The uterine pack is also of value in controlling hemorrhage, as we have observed in a series of cases of placenta previa and abruptio placentae.

The management of the placenta in abdominal pregnancy is not a simple matter under any circumstances. It is often impossible to remove it even partially because the placental tissue is densely adherent to the abdominal viscera. Unwise procedures may cause fatal hemorrhage. The more nearly full-term gestation is approached, the more frequently can placental detachment be achieved without serious hemorrhage, because a definite line of cleavage is present. In other cases the best plan is to remove the fetus, ligate the cord close to the placental surface, marsupialize the placental sac, and leave the placenta *in situ* to be absorbed.

In five cases of abdominal pregnancy, all of more than seven months' duration, observed at Charity Hospital during the last 10 years, the placenta was completely removed in two, left *in situ* in two, and partially removed in one. All patients recovered.

SUMMARY

1. The immediate and remote complications and abnormalities of the third stage of labor are responsible for a definite maternal mortality and for a high incidence of maternal morbidity.

2. Both morbidity and mortality are most often due to mismanagement of this very important stage of labor. Correct management is based on an accurate knowledge and comprehension of the normal mechanism of the third stage, in which recognition of placental detachment is essential.

3. A conservative, expectant policy is advocated for the management of the third stage of labor. It should not, however, be carried to the point of negligence by the postponement of active intervention when indications for it are present.

4. The management of certain pathologic conditions of the third stage is presented, together with the incidence and mortality of these complications at Charity Hospital of Louisiana at New Orleans during the decade ending January 1, 1940.

DISCUSSION

Dr. Edwin L. Zander (New Orleans): It is universally recognized that proper management of the third stage of labor is of utmost importance, yet discussion of this subject is infrequent and often passed over for more striking and unusual types of obstetric pathology.

Davis states that the third stage is divided into delivery of placenta, repair of lacerations and postpartal convalescence. I believe delivery of the placenta in the third stage is most important. With delivery of the fetus the fate and condition of the baby is decided ending the second stage. The fate of the mother, that is to say postpartum convalescence, is decided in the next thirty minutes after the end of the second stage. It has been my experience in seeing medical students, that they have a poor conception of the physiology of the third stage. I have noticed further that when senior students become interns there is an increase at first, in the amount of retained placentae and postpartum hemorrhage, resulting from undue tampering, pulling on the cord, and trauma. In clinical work we should stress prophylaxis of complications in the third stage. I have administered oxytocic at the end of the second stage. I believe this shortens the third stage. I do not believe that this routine has any deleterious effects. During the past 20 years I have had two retained placentae and could not blame this on the oxytocic used.

Another thing I would like to stress is the question of blood transfusions. They are more commonly used at the present time following delivery, particularly in women with much blood loss. The amount of loss of blood determines the condition of the patient in regard to infection which might follow delivery. In 1930 at Charity Hospital there was one blood transfusion to every 102 deliveries. In 1939 there was one to every 34 deliveries, showing, in my opinion, the importance of blood transfusions. These cases had comparative decreases in mortality and morbidity.

I believe that it is important that the cord should not be used for traction, and only as a guide for the delivery of placenta. No traction in delivery of the placenta is permissible. I believe the question of proper method of carrying out the Credé method for delivery of the placenta is very important in control of bleeding and other postpartal results. Contrary to some fellow obstetricians, I believe that in cases where the placenta is retained, probably a few hours, there is less harm in manual removal under aseptic conditions than leaving the placenta in.

Dr. Peter Salatich (New Orleans): A point in my experience which has helped a good deal in delivery of the placenta, is after the head is born, give the patient 1 c.c of pituitrin. It is surprising how easy the placenta is expressed. I have seen men deliver a baby and right away want to get the placenta out; wait at least 10 to 15 minutes to allow the placenta to separate, providing the patient is not bleeding a lot.

Dr. E. L. King (New Orleans): I want to mention one or two points: One is manual removal of the placenta. I feel as Dr. Arnell, that a long wait is not wise. We have had cases where we waited 14 to 24 fours at the hospital, with fear and trembling I must admit; often the placenta would finally become detached spontaneously. During that time there might be bleeding and trickling from hour to hour, which is generally underestimated. I have adopted the policy that if the placenta is not delivered in a couple of hours, after using the Credé method, take it out manually.

In the matter of exploration of the uterus after operative delivery, that is something about which we should exercise some caution. I believe we should have definite indications for going into that uterus. Occasionally as Dr. Arnell has noted we find a ruptured uterus.

Dr. C. C. deGravelles (New Iberia): I think one of the most important factors in the third stage of labor and one of the things we should think most of is the conservation of the mother's blood. I believe too many of us, after the baby is born, wash our hands and sit back and just wait around until nature causes the clot to form and expel the placenta. I have found that it is a good idea after the baby is born, never to take my hands off the uterus. Frequently I have seen bad hemorrhages when that fact was disregarded. Especially is this true after a long tedious labor. Sometimes when the uterus was left to expel the placenta unaided I went back and found the uterus filled and considerable hemorrhage followed expulsion of the placenta. The best policy in my opinion is to keep the hands on the uterus all of the time until the placenta has been delivered.

There is one question I would like to ask in regard to the giving of pituitrin and that is whether it is used at the end of the second or the third stage?

Dr. R. E. Arnell (In conclusion): For the routine obstetric work in the home I believe that some form of oxytocic should be used, preferably administered at the end of the third stage. Administration at the end of the second stage requires perfect timing so that the placenta can be delivered at once after it has separated. If such perfect timing is not possible because the baby must be cared for, the cord tied, and so forth, uterine stimulants should not be given until placental delivery has been completed. Constant attention to the mechanism of the third stage will prevent most complications.

o

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio
For one year: Lucien A. LeDoux, M. D., Vice-chairman.
H. W. Kostmayer, M. D.
Secretary
For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF
John H. Musser, M. D. *Editor-in-Chief*
Willard R. Wirth, M. D. *Editor*
Edwin L. Zander, M. D. *Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D. *General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

MEDICO-MILITARY MATTERS

The examination of the draftees by the doctors who have so cheerfully and willingly volunteered their services is proceeding in the State of Louisiana smoothly and efficiently. In spite of the original request for one medical man for each draft board, it has been found, as it was thought at the time, necessary to increase materially the group of examining physicians so that very many more men have given their services than the list published last month in this Journal. As appointments are still being made and the present list is not complete, it will not be published until a later date. It was found impossible also to continue appointing men who were over the draft age, so a considerable number of the younger group of doctors have also been good enough to donate their services to this important cause.

Some of the officers in the Medical Reserve Corps have, to a limited extent, been called into active service. The Army has figured that it will need around 8,400 medical officers for the training period. There are now about 4,000 men on duty. Roughly these medical men are divided as follows: 1,200 from the regular Army; 1,600 from the National Guard and 1,200 from the Medical Reserve Corps. This will necessitate, when the program for the training becomes effective, approximately 4,400 more physicians. At the present time there are some 14,000 men in the Medical Reserve Corps and on the first of July there will be between 1200-1500 more available who have taken the R. O. T. C. training. About 13,000 of the physicians in the Medical Reserve Corps have the rank of Lieutenant or Captain. It will be these younger men for the most part who will be assigned to duty. The thousand or more men of higher rank may possibly be called only for special duty or for a short period of time.

In the meantime the Navy will need about 1,200 medical men for their increased program.

The figures given above are not official but they might be said to be semi-official. They were obtained from an officer assigned to the Surgeon General's office and are relatively authentic as of the date this was written. Of course they may be subject to change from day to day.

In the event of war, with full mobilization of the man power of this country, it is estimated that there will be needed 30,000 medical officers. This of course will disrupt civil practice to a very considerable extent. It is a problem which will have to be dealt with by Dr. Cole, Chairman of the Committee on

National Defense of the American Medical Association. In working out the difficulties that necessarily will arise, he will have to have the aid and assistance of the parish and district medical societies and their officers. Plans will have to be made to take care of the people at home should the present so-called emergency become an active one.

SYPHILIS IN LOUISIANA

Recently there has been sent out a report on the incidence of syphilis in the various states of this country, as well as in cities that have a population of over 200,000. The annual rate per thousand population of syphilis and gonorrhea in Louisiana is remarkably low. For the former disease it is 3.40 and for the latter 0.48. Contrasting neighboring states it is found that the rate for syphilis in Mississippi is slightly over 20 and for gonorrhea a bit over 14; in Texas it is 5.59 and 1.57 respectively. Arkansas has practically the same figures and Alabama is almost identically the same as Texas. On the other hand, in South Carolina the rate for lues is 10 plus, for gonorrhea 1 plus. The rate in the Southern states is, as would be expected for obvious reasons, higher than it is in the North, Northcentral and Western states. However, it must be borne in mind that the state health service in the Southern states for the most part is decidedly superior to that of the states elsewhere in the United States. The health service offered by Southern state boards of health is more complete and better organized than the majority of states in the country, consequently where there is good health service the reporting of syphilis and gonorrhea is carried out more carefully than elsewhere. Rather than being a reflection on Mississippi, the fact that they have the highest rate for these venereal diseases would further prove that it has one of the best health departments in the United States.

Of course, the actual rates are very much higher than the reported rates. Every physician knows that there is more gonorrhea than there is syphilis and yet the reported rates of gonorrhea are just one-third of syphilis, indicating very definitely that there is laxity in reporting gonorrhea and undoubtedly there is also laxity in reporting cases of syphilis. It is very doubtful that Mississippi has four times as much syphilis as Arkansas or Texas or even Alabama.

In New Orleans the rate is extremely low, 1.9 for syphilis per 1,000 population, 1.2 for gonorrhea. These figures are very much out of line with other cities in the United States, with the State as a whole and with venereal disease surveys of the incidence of syphilis in New Orleans. Clarke*, for example, found in New Orleans the rate of syphilis to be nearly three and a half times the reported rate and gonorrhea ten times more frequent than reported. The rate for syphilis in 1931 was estimated to be 12.45 per thousand. While the incidence of syphilis may have diminished considerably in the last nine years, it is doubtful if the rate could have dropped from 12 to slightly under 2. Definitely the New Orleans doctors are falling down on their job of reporting syphilis and gonorrhea, whereas the doctors throughout the State are very much more attentive to their duty in listing these two diseases.

PULMONARY EMBOLISM

Surgeons and obstetricians are well acquainted with the dangers of pulmonary embolism and of the complications that occur as result of embolism of the pulmonary artery after operation. On account of the increasing number of roentgenograms of the chest being made daily, the roentgenologists also have shown marked interest in the study of pulmonary infarcts. On the other hand, writes White,* the medical man has not been concerned to any great extent with the medical aspects of the problem. He points out, in a recent paper, that he himself for many years did not appreciate the frequency of pulmonary embolism and infarction and it has been only within the last comparatively few years when he has made particular efforts to discover this relatively common complication of heart disease that he has realized it is a fairly frequent condition.

---

*Clarke, Walter: The burden of syphilis and gonorrhea in New Orleans, New Orleans M. & S. J., 84:163, 1931.

*White, Paul D.: Pulmonary embolism and heart disease, Am. J. Med. Sci., 200:577, 1940.

In the cases that are reported by this observer, the great majority, as would be expected in the practice of a cardiologist, were dependent upon a preceding heart lesion. In the 370 cases of pulmonary embolism and infarction studied after death at the Massachusetts General Hospital, 40 per cent were postoperative with 59 per cent of infarction; 30 per cent were cardiac with 90 per cent infarctions and 30 per cent were non-cardiac medical cases with 72 per cent of infarcts. In other words, infarction is very much more likely to occur in the heart patients but the percentage relation between the cardiac and non-cardiac patients is about equal.

Some of these cases without cardiac disease resemble very closely cases of heart disease. These were the patients who had acute cor pulmonale, whose right ventricle was dilated, the neck veins were engorged and other symptoms of right heart failure were present.

It is to be expected that in the instance of complicated heart disease associated with congestive heart failure with the usual signs at the base of the lungs, the physical expressions of pulmonary infarction may be completely obscured. The physician naturally expects or diagnoses bronchopneumonia when the patient develops fever and leukocytosis, plus shortness of breath, relative marked prostration and particularly a tachycardia which may be associated with chest pain, cough and hemoptysis. The diagnosis obviously is difficult but there is this to be remembered that in a cardiac patient with congestive failure who does not respond to treatment this possibility of pulmonary infarction should be in the mind of the practitioner. The group of symptoms may simulate coronary thrombosis.

In so far as treatment is concerned, oxygen plus morphine, plus atropine, plus digitalis, are the best drugs to administer. The patient should be kept absolutely at rest and this rest should be enforced not only upon the patient but also upon the doctor. Sometimes patients are killed by too great attentiveness to treatment by the physician trying to do too much. Fortunately the acute symptoms subside promptly and the anticipated misdiagnosed pneumonia, with its course of a week or two does not materialize because the man is either dead or on the road to recovery within forty-eight to seventy-two hours.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

SOUTHERN BAPTIST HOSPITAL

New Orleans

The regular monthly meeting of the Clinical Staff was held in the staff room of the hospital at 8 p. m. on November 26. The program consisted of the following presentations: "Premature Separation of placenta with Case Report," by Dr. E. A. Ficklen; "Solitary Kidney with Marked Hydronephrosis, with Case Report," by Drs. M. M. Green and H. H. Russell; "Three Interesting, Odd Cases" by Dr. W. B. Clarke; "Death Report", by Dr. Bert DeBord.

C. L. Cox, M. D., Chm.

CHARITY HOSPITAL

MEDICAL DIVISION

New Orleans

The regular monthly meeting of the Medical Section of the Charity Hospital Visiting Staff was held on Tuesday, October 15, 1940, at 8:00 p. m. in the auditorium of the hospital. The meeting was called to order by the Chairman, Dr. T. A. Watters.

The program consisted of the following, presented by members of the staff of the Tulane Division: A pathologic presentation of "Bronchiogenic Carcinoma" by Dr. H. J. Schattenberg; "A Case with Brachial Plexus Lesion" by Dr. R. H. Turner; "A Case Presentation" by Dr. W. A. Sodeman; and "A Case of Spontaneous Hypoglycemia" by Dr. R. P. Vieth.

Bronchiogenic Carcinoma (Dr. H. J. Schattenberg): The patient was a white male, aged 52, who was admitted to the hospital on August 17, 1940, with the chief complaints of anorexia, loss of weight and weakness. He was in apparent good health until two weeks prior to his admission, at which time he developed a cough which was productive of mucoid sputum. There was no history of chest pain or hemoptysis. He claimed he had lost 35 pounds in weight from the beginning of the present illness until admission to the hospital. He has been mildly dyspneic. Temperature, pulse, and blood pressure were normal on admission. The respiratory rate was 25 per minute. There were no palpable lymph nodes in the neck. The thorax was symmetrical. A few moist rales were heard at the right base posteriorly. The blood picture values were 65 per cent hemoglobin and 3,400,000 red blood cells. The sputum examination was negative. Bronchoscopy was performed and the right and left bronchi were found to be filled with thick, creamy pus. No tumors were noted. X-ray of the chest was interpreted as showing metastatic tumor nodules in both lungs. During the patient's stay in the hospital he continued to cough, became progressively weaker and more hoarse. He died forty-two days after admission.

The gross and microscopic pathologic diagnosis at autopsy was primary carcinoma of the lung with metastasis throughout both lungs.

In the discussion the various hypotheses advanced in an attempt to explain the mode of metastasis of a primary tumor to other parts of the same lung or to the opposite lung were presented. Several slides were shown illustrating gross, microscopic and x-ray findings in this and similar reported cases.

A Case with Brachial Plexus Lesion (Dr. R. H. Turner): The patient, whose case I wanted to present, has left the hospital. It is a case of a white male, aged 39, a farmer, who has had five admissions to the hospital in the last year and on each admission, except the first, something was brought out which aided in the development of a highly diagnostic clinical picture. The first admission was for skin lesions on the face. In February 1940 he had what he thought was influenza with generalized weakness and fever. He became quite sick and stayed in bed for a week. Some doctor said he had pneumonia and another sneered at this diagnosis and thought it was influenza. He was never well after this illness. In two weeks he developed pain in the right shoulder which extended to the right arm and hand. During the next few months the pain became extremely severe and radiated down the arm to the ulnar side to the ring finger more than any other portion of the hand. He was admitted in April to a surgical service, still complaining of this pain. He was diagnosed at that time as having peripheral neuralgia. The intern noted that the left pupil was larger than the right. On examining the lungs Dr. Boaz states that he suspected pathology in the apices of the lungs, particularly the right. The patient stayed in the hospital only a few days, then came back in May on the orthopedic service. At that time the right arm was weaker and smaller than the left. There was no note made of pupils or difference in sweating. He still complained chiefly of pain in the shoulder and chest in the region of the fifth rib. He was readmitted in August, at which time I saw him for the first time. The right pupil was smaller, there was drooping of the right lid but no difference in sweating noted in the two portions of the face. His right shoulder drooped and he carried his right arm in twisted position and his head was twisted to the right. The entire right hand and arm were extremely weak, sensitive to touch but did not sweat. There was obvious atrophy of the muscles of the arm and hand. (The suggestion was made at that time that he had a tumor in the apex of the right lung which involved the brachial plexus.) There was a mass behind the clavicle and the sternomastoid but the muscle was so tense that it was difficult to be certain of its nature. It was noticed that the x-rays made in April showed little, but the diagnosis was made of old tuberculosis at both apices. X-rays made in June showed a definite clouding in the right apex but there was no abnormality of the bones. X-rays made in August showed a greater apical density but no lesion of bone, but during the month of September, during an additional admission, there was demonstrated quite clearly destruction of a portion of the second rib on the right. There was one part that showed some erosion of the lateral surface of two vertebrae.

This patient exhibits all the cardinal features of Pancoast's syndrome. Since Pancoast's report in 1932, there have been a great number of reports in the literature, many of which I have read, and I am rather impressed by the stereotyped findings. Apparently Pancoast made one mistake as there were no autopsy findings in his series and only three biopsies, and in spite of this fact he stated that these tumors did not arise from the lung. It is clear that the nature of the tumors is multiple. Most of them are primary carcinomas of the lung; others do arise from the brachial cleft structures, or from the sympathetic nervous system. There are no accurate figures on the total incidence but it must be quite rare. In a Philadelphia series of 6,000 autopsies there were 500 malignancies, 32 were primary carcinoma of the lung. There were no instances of this syndrome. It would seem to cause death less frequently than once in 6,000 deaths. It seems to occur less frequently than once for 30 carcinomas of the lung, which makes it a fairly rare syndrome. It occurs about equally on the two sides. One of the characteristic features is that patients do not commonly have lung symptoms, such as cough, hemoptysis or signs of infection in the lung, as do other bronchiogenic carcinomas so frequently. The ones that occurred on the left have been more commonly associated with pleural effusion and erosion of the ribs farther down around the apex of the lung. It may be purely accidental that the difference between the right and left is striking. Of course, a great deal has been written about why they happen to occur so far in the periphery of the lung and why they invade the neck. I have seen no good explanation. If there were lymphatic channels in apical pleural adhesions, this might be a partial explanation. The condition is nearly always associated with extreme suffering. The pain is intense, long and unremitting and not relieved by anything that is available. The use of radiotherapy has been completely unsuccessful. No one who has tried it recommends its use. So far, I would say that the syndrome is of great interest because of the sharply drawn clinical picture, because of the rather puzzling features of the pathogenesis, and it is terrifying because of the suffering it involves and the hopelessness of the therapy.

DISCUSSION

Dr. Bayley: I have seen this same syndrome caused by actinomycosis in a patient who was admitted to the hospital and died in about two months' time. For a while we considered it as due to a tumor but a sinus developed and actinomyces were found.

A Case Presentation (Dr. W. A. Sodeman): A negress, age 29, was in good health until three weeks before admission when she developed a head cold followed by non-productive cough. In several days she became short of breath and developed a sharp pain in her left chest posteriorly. She thought she had had fever for about a week before admission. Past and family histories appeared unimportant. Physical examination revealed a febrile patient who appeared acutely ill. She was dyspneic with a hot, dry skin, and had evidence of rhinitis and carious teeth. The findings of interest were in the chest. There was some dulness in the left base posteriorly with absence of breath sounds in the same area. The cardiac rhythm was regular, the heart was enlarged to the left, pulse was 106 per minute and parodoxical in type. Blood pressure was 110/78. X-rays of the chest on the way to the ward showed a tremendously enlarged cardiac shadow. Venous pressure varied from 22 to 25 cm. of water. The abdomen showed slight left upper quadrant tenderness and the pelvis was not remarkable.

Pericardial tap produced 260 c. c. of blood-tinged fluid with a specific gravity over 1.020, and no organisms on smear or culture. Sections made of the centrifuged sediment showed red blood cells and occasional lymphocytes. Tenderness developed over the left lung base and again 440 c. c. were withdrawn from the pericardium by anterior tap. Increase in the dulness posteriorly and extension into the axilla led to the diagnosis of pleural effusion and 600 c. c. of fluid, identical in character with the pericardial fluid obtained anteriorly, were withdrawn.

The Mantoux test was positive in dilution of 1:10,000 but not in dilution of 1:100,000. The white blood cells of the blood never exceeded 8,100 per cubic millimeter. The blood settled 18 mm. in 35 minutes. The urine showed occasional casts and a slight amount of albumin. Sputum was negative. The Wassermann was repeatedly positive. Blood cultures were negative, as were agglutinations for tularemia, undulant fever, typhoid, and paratyphoid. Blood glucose was 78 and urea 14. Fluoroscopy of the heart showed a greatly enlarged shadow with a contour that fitted well with the diagnosis of pericardial effusion and with feeble pulsations. The esophagus was not displaced. The electrocardiogram showed no ST shift, but the T-waves were inverted in all four leads.

She had had fever almost continuously since admission. It varied from 103° to normal and was not affected by 120 grains of sodium salicylate daily for a week. At present she weighs 105 pounds.

The diagnosis of pericardial effusion is obvious. The cardiac shadow obscures the lower left lung field in the x-ray and the presence of pleural fluid is doubtful. It is possible that the fluid obtained by posterior tap was pericardial. Injection of air at the time would have settled this point but unfortunately was not done.

Since the fluid is obviously an exudate, we must consider the causes of pericarditis with effusion. The chief causes are: (1) pneumonia, influenza, and other infections in proximity to the pericardium, (2) tuberculosis, (3) rheumatic fever, (4) disseminated lupus, (5) trauma. The character of the fluid rules out the purulent types and especially those due to organisms easily recognized by fluid culture and examination. Therefore, tuberculosis, rheumatic fever, and lupus are the most likely possibilities. There is little to favor the last in the absence of renal involvement, arthritis, and skin manifestations. All patients, however, do not have skin manifestations.

Tuberculous pericarditis is most frequent in the negro and 90 per cent occur in males. As in this patient, past and family histories are usually negative. The mode of onset is, however, usually insidious. Evidences of cardiac tamponade develop. Significant murmurs are absent. About 30 per cent develop Ewart's sign. It is most frequent in older age groups, only 25 per cent occurring from 20 to 30 years. Dyspnea and cough are common, but sputum and hemoptysis rare. Again, as in this patient, the white blood count is in normal range, and the fluid is often serosanguineous.

Rheumatic pericarditis usually develops in children and frequently a past history of rheumatic arthritis, other evidences of the rheumatic syndrome, or rheumatic heart disease can be obtained. Leukocytosis is expected and in the effusion polymorphonuclears predominate. With pancarditis the heart is usually dilated and replacement of fluid with air demonstrates an enlarged heart. In tuberculous pericarditis the same procedure usually shows a normal sized heart. Without a past history of rheumatic fever and without valvulitis, rheumatic pericarditis may be otherwise difficult to diagnose. Salicylates are said generally not to affect the heart. They affect especially the exudative manifestations of rheumatic fever and reports have shown reductions in pericardial effusion and temperature, reduction in venous pressure, and relief of symptoms. Such reports are found especially in the French literature. These responses were not found in the present patient.

You can see from what I have said that I think the diagnosis is tuberculous pericarditis. The diagnosis of disseminated lupus is a remote possibility. There may be some other diagnosis I have not mentioned, but I cannot think what it might be. If any have arisen in your minds, I would like to hear them.

DISCUSSION

Dr. Bayley: I would like to say the symptoms which Dr. Sodeman discussed are more or less characteristic of tuberculous pericarditis with a rapid accumulation of the large quantity of fluid. This mass of fluid is not usually seen in rheumatic pericarditis. I was just wondering if replacement with air would not keep this cavity dry.

Dr. Sodeman: I think that air should be injected into the pericardial cavity and that it may be of some importance in preventing an adherent pericardium. What Dr. Bayley says about the size of effusion in rheumatic fever and tuberculosis is true. Of course, in tuberculous effusion, where the effusion is very great, tap has to be done to relieve symptoms. I only wish that some air had been put in at the tap posteriorly and we would have known if she had fluid in two cavities instead of one.

A Case of Spontaneous Hypoglycemia (Dr. Richard P. Vieth): This patient is a three year old colored female, who was first seen in the Outpatient Department of Charity Hospital on June 4, 1940. The history is that early in March of this year, the patient suddenly had a "falling-out" spell, lost consciousness, and could be aroused only with difficulty. She remained in this semiconscious condition for about half an hour. After that time, she had repeated attacks similar to the one I have just described until the onset of what the mother called convulsions on June 4. On questioning, the mother revealed the fact that the convulsions consisted of stupor, with twitching of the hands and arms, and peculiar movements of the jaws, resembling swallowing motions.

The past history of the patient is not significant except in so far as the diet is concerned. She was breast fed until she was one year old and then she was given Magnolia milk and vegetables. She also has had cereals and vegetables in her diet, but very little in the way of animal fats and proteins.

The family history is also negative. The child was seen several times in the clinic, but there was no change in her condition. She continued to have repeated attacks, such as I have described, occurring several times a day. On September 20, she was hospitalized for more thorough study. Physical examination was entirely negative. The laboratory data, with the exception of the blood chemistry, were also negative. On five different occasions, the fasting blood sugar values were 133, 58, 60, and 48 mg. per cent. A glucose tolerance test revealed the following values: fasting blood sugar, 58 mg. per cent; one-half hour, 62 mg. per cent; one hour, 62 mg. per cent; two hours, 62 mg. per cent; three hours, 54 mg. per cent. A spinal puncture was done and was negative except for the fact that the spinal fluid sugar content was too low to be read.

During the patient's stay in the hospital, she has had many attacks. They are usually precipitated by the withholding of food for only a few hours beyond her usual mealtime. In every instance, she is restored immediately and dramatically to complete consciousness and well being by the administration of orange juice.

From the clinical picture and laboratory findings, we feel justified in making a diagnosis of spontaneous hypoglycemia in this case. As yet, the cause has not been determined.

If extra-pancreatic causes for the hypoglycemia can be ruled out, and if she does not respond after a fair trial to the usual dietary and medical measures, we believe that a laparotomy is indicated.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

December 2.	Orleans Parish Medical Society Board of Directors, 8 p. m. Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
December 3.	Eye, Ear, Nose and Throat Staff, 8 p. m. Chaillé Memorial Oration, Hutchinson Memorial Auditorium, 8 p. m.
December 4.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. Hutchinson Memorial Clinic Staff, 8 p. m. Mercy Hospital Staff, 8 p. m.
December 5.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
December 9.	Orleans Parish Medical Society, 8 p. m.
December 10.	Eye, Ear, Nose and Throat Staff, 8 p. m.
December 11.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. Touro Infirmary Staff, 8 p. m.
December 16.	Hotel Dieu Staff, 8 p. m.
December 17.	Charity Hospital Medical Staff, 8 p. m.

December 18.	Clinic-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. Charity Hospital Surgical Staff, 8 p .m. The Orleans Tuberculosis Hospital Staff, 8 p. m.
December 19.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
December 20.	I. C. R. R. Hospital Staff, 12 noon. New Orleans Dispensary for Women and Children Staff, 8 p. m.
December 24.	Baptist Hospital Staff, 8 p. m.
December 26.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
December 27.	L. S. U. Faculty Club, 8 p. m.

During the month of November, the Society held one regular scientific meeting and a special meeting with the U. S. Marine Hospital Staff. The following program was presented at the regular meeting:

1. Biographical Sketch: Reflections on Dr. Edmond Souchon By Dr. Isidore Cohn
2. Case Report: Intramedullary Aneurysm of the Cord
   By Drs. D. H. Echols and R. G. Holcombe, Jr.
3. Symposium on Recent Advances in Vitamins
   a. Chemistry of Vitamins
   By Invitation Dr. Arthur O. Kastler
   b. Medical Aspects By Dr. Samuel B. Nadler
   c. Surgical Aspects By Dr. Michael DeBakey

At the special meeting the following program was presented:

1. Sulfonamides in the Treatment of Gonorrhea in the Male
   By Dr. John A. Trautman, Past Assistant Surgeon
2. Case Report: Typhoid Carrier
   By Dr. William L. Smith, Senior Surgeon.
3. New Technic for Repair of Inguinal Hernia
   By Dr. John D. Lane, Jr.

Nomination of officers of the Orleans Parish Medical Society and delegates to the Louisiana State Medical Society, for 1941, were read by the Secretary at the regular meeting.

The following physicians were elected to active membership in the Society: Drs. Rafael F. Ayon, Joseph M. Brocato, J. Fred Dunn, Elmer E. W. Kramer, Evelyn B. Nix, Ruth L. M. Shushan, Carl J. W. Wilen, Hippolyte P. Marks and Edward A. Jurgelwicz; to intern membership, Julius W. Davenport, Jr., Walter P. Diaz, George G. Gill, Courtland P. Smith, Sidney Stillman, and Samuel Zurik.

NEWS ITEMS

Dr. Henry B. Alsobrook spoke before the Tangipahoa Parish Medical Society, Hammond, October 3. The title of his paper was "Office Gynecology."

Dr. O. W. Bethea discussed immaterial cardiac conditions at a clinical staff meeting of the Baptist Hospital, October 22. Drs. Robert Bernhard and George E. Barnes presented a study of a case of rheumatic fever. Dr. W. R. Hardy discussed a case of cholelithiasis complicated by peptic ulcer of the duodenum. Dr. C. L. Cox presided at the meeting.

Drs. Michael DeBakey and Alton Ochsner presented a paper on "Achalasia of the Esophagus" at the American College of Surgeons, Chicago, October 24.

Drs. C. Gordon Johnson, Isaac W. Kaplan, Samuel Karlin, John G. Menville, and Lawrence H. Strug were initiated as follows into the American College of Surgeons at a convention in Chicago, October 21.

Dr. Leon J. Menville has been appointed part time head of the radiology department at Charity Hospital. Dr. W. D. Phillips was appointed chairman of the medical committee.

Dr. Alton Ochsner gave talks before the Montgomery County Medical Society at Montgomery, October 15, the North Mississippi Medical Society at Oxford, October 16, and the Calumet Branch of the Chicago Medical Society on October 24.

Dr. Walter J. Otis was elected a councilor of the Southern Psychiatric Association at a meeting of this organization at Jacksonville, October 21-22. Drs. Gilbert C. Anderson and Charles S. Holbrook also attended this meeting. Dr. Anderson presented a paper on "Relationship between Some Neuropsychiatric Conditions and Oral and Dental Lesions." Dr. Holbrook presented a paper on "Psychosis in Identical Twins."

Dr. W. H. Perkins was toastmaster at a luncheon recently given by the Tuberculosis and Public Health Association of Louisiana in honor of executives of the National Tuberculosis Association.

Dr. Howard Mahorner addressed the Hartford Medical Society at Hartford, October 7. The title of his paper was "Surgery of the Venous System." Dr. Mahorner also presented a paper entitled, "Recent Advances in the Surgical Management of Goiter," before the Gulf Coast Clinical Society at Gulfport, October 17-18.

Dr. John T. O'Ferrall attended the meeting of the Clinical Orthopedic Society at Milwaukee, October 18, and Madison, October 19.

THE GOLF TOURNAMENT

Dr. D. J. Farley is the new golf champion of the Orleans Parish Medical Society, succeeding Dr. L. R. DeBuys. Dr. Farley won the group's annual tournament Wednesday at the Metairie Golf Club with low gross 81.

Dr. W. C. Rivenbark, chairman of the golf committee, announced the tournament winners as follows:

Low Gross—Dr. D. J. Farley, 81; Dr. Val Fuchs, 84; Dr. H. Meyer, 85.

Low Net—Dr. Allan Eustis, 71; Dr. J. S. Webb, 72; Dr. H. A. Thomas, 73.

Blind Holes—Dr. F. Cato, 33; Dr. K. Brau, 37; Dr. L. R. DeBuys, 37.

Poker Hand on First Nine—Dr. E. L. King, Dr. F. Boyce.

Poker Hand on Second Nine—Dr. J. H. Musser, Dr. E. L. Zander.

Nearest No. 12 Hole—Dr. Jack Strange, 30 feet 4 inches.

Nearest No. 17 Hole—Dr. W. C. Rivenbark, 4 feet.

High Score—Dr. M. P. Schwarzenbach, 115.

Kickers—First, Dr. C. H. Weinberg, 81; second, Dr. W. R. Hardy, 79; Dr. J. K. Stone, 79; Dr. R. F. Sharp, 79; Dr. L. A. Fortier, 79; third, Dr. E. H. Lawson, 84; Dr. Ed Faust, 84; Dr. R. E. de la Houssaye, 84; Dr. C. B. Odom, 84.

TREASURER'S REPORT

Bank balance September 30, 1940	$ 3,910.57
October credits	370.47
Total credits	$ 4,281.04
October expenditures	615.08
Actual book balance October 31, 1940	$ 3,665.96

Edwin L. Zander, M. D., Sec.

* * *

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	**Second Wednesday of every month**	**Baton Rouge**
Morehouse	**Second Tuesday of every month**	**Bastrop**
Orleans	**Second Monday of every month**	**New Orleans**
Sabine	**First Wednesday of every month**	
Second District	**Third Thursday of every month**	

OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting of the Ouachita Parish Medical Society was called to order November 7, at 7:30 p. m., by Dr. D. T. Milam, president. The minutes of the meeting of October 6 were read and approved.

The president announced that due to the number of business matters to be discussed there would not be any scientific program.

The Committee on the Mutual Hospital Association gave its report and a letter from Mr. Colvin was read. Mr. Colvin asked permission from the society to ask each doctor the number of calls and operations and the amounts collected on employees and their families of the Brown Paper Mill. It was so moved by Dr. Simonton, seconded by Dr. Graves and carried.

Letters from the New Orleans Graduate Assembly, the L. S. U. Extension Service and the National Physicians' Committee were read.

Dr. George Snellings presented the report of the Committee for the Banquet honoring Dr. Faulk. The committee has invited Dr. J. T. Nix to be the speaker and he has accepted. Invitations will be extended to representatives of the adjoining parish medical societies.

The application of Dr. J. H. Parrott was read and referred to the Membership Committee.

Dr. Milam announced that this would be the last meeting at which he would preside, because he had been called for active duty. Dr. Hamilton moved that the society give Dr. Milam a rising vote of thanks for the efficient and excellent president he has made. This was done.

L. L. Titche, M. D., Sec.

MOREHOUSE PARISH MEDICAL SOCIETY

The organization convened on Tuesday, November 19, to pay honor to the councilor of their district, Dr. W. A. Rodgers. There was a large attendance of doctors, not only from Morehouse Parish but many from Monroe. A delicious barbecue dinner was served at the Country Club, and was followed by talks from several of the local members as well as from Dr. P. T. Talbot, secretary-treasurer of the State Society, Dr. D. N. Silverman, councilor of the second district, and Dr. J. H. Musser, president of the State Board of Health.

Dr. R. B. Robins, of Camden, councilor of the fifth district of the State of Arkansas, was a guest of the society, and presented a paper on "Head Injuries," illustrated with lantern slides.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The fifth annual meeting of the New Orleans Graduate Medical Assembly will be held March

3-6, at the Roosevelt Hotel, followed by clinics in the hospitals of New Orleans on March 7. Eighteen guest speakers, each one an outstanding leader in his special field, will contribute liberally to the program and will be available for informal discussions with those who attend.

It is especially significant that the Assembly has enjoyed an increase in attendance each year, last year's registration being over one thousand. Many of the registrants were physicians who attended previous meetings which is very gratifying to the sponsors because it indicates that the previous programs have supplied just what the busy doctor needs in the way of an intensive refresher course.

The success of the previous assemblies, together with the experience gained in planning courses of this type, has been the inspiration to introduce additional features each year. The regular four-day program will be followed by clinics in the local hospitals on March 7, conducted by members of the Assembly in medicine, surgery and allied specialties. These clinics will add greatly to the interest and value of the meeting because of the wealth of material available in New Orleans.

In addition to the featuring addresses and round-table discussions by eighteen of the country's foremost medical educators, the scientific and technical exhibits which are being sponsored by the two medical schools, individual members and the leading ethical manufacturers of drugs and equipment, will be more elaborate than ever.

Following the program in New Orleans will be the second annual Post-clinical Cruise to Havana, Panama, Canal Zone, and Honduras. The cruise is scheduled for March 8 and a most interesting, instructive and relaxing itinerary is planned for the sixteen days. Talks will be given aboard, followed by general discussions and medical motion pictures. Visits will also be made to the outstanding hospitals in Havana and the Panama Canal Zone, as well as the United Fruit Company hospitals in Honduras.

The Assembly offers five full days of medical education, combined with recreation in the interesting city of New Orleans. The registration fee of $10.00 covers all features, including four daily round-table luncheons as well as the smoker. The cruise is, of course, additional and if descriptive literature and booking information is desired write to the secretary of the New Orleans Graduate Medical Assembly, Room 105, 1430 Tulane Avenue, New Orleans.

AMERICAN PUBLIC HEALTH ASSOCIATION

The recent meeting held October 7 in Detroit, the sixty-ninth annual meeting, was attended by 3,187 physicians, sanitarians, statisticians and others connected with public health work. Dr. W. S. Leathers, of Nashville, Tennessee, was elected president of the organization, whose next meeting will be held in Atlantic City in October, 1941.

ARMY MEDICAL LIBRARY

The librarian of the Surgeon General's Library requests that reprints of articles published in current medical literature be sent to the Army Medical Library.

A. M. A. BROADCASTING

Attention is again called to the series of broadcasts presented by the A. M. A. over the national broadcasting chain. The broadcasts will take place every Wednesday until June 3, 1941, at 9:30 p. m., over the Blue network.

MEDICAL AND SURGICAL SUPPLY COMMITTEE

This organization actively is soliciting aid for the medical men of Great Britain. Instruments, surgical supplies and all types of equipment are needed. The medical men in Louisiana who have some of these materials which they no longer need are urged to send them to one of the members of the regional committee of the state. These men are Drs. Rudolph Matas, D. N. Silverman, Alton Ochsner, and J. H. Musser, of New Orleans; and A. A. Herold, of Shreveport.

SOUTHERN MEDICAL ASSOCIATION

At the recent meeting of the Southern Medical Association several New Orleans physicians were chosen as sectional officers. Dr. T. A. Watters was named vice-chairman of the section on neurology and psychiatry; Dr. Maurice Lescale, vice-chairman of the section on proctology; Dr. Merrill Beck, secretary of section on anesthesia; Dr. John T. Sanders, secretary of section on gynecology, and Dr. Joseph W. Reddoch, chairman of the section on obstetrics.

There was a large attendance among the doctors from New Orleans at this very successful meeting.

Dr. L. A. LeDoux, councilor from Louisiana, was appointed to the Executive Committee of the council for a three year term.

The third annual meeting of the American Academy of Dermatology and Syphilology will be held at the Palmer House in Chicago, December 8-11.

NEW ITEMS

Dr. Charles James Bloom taught at the Southern Pediatric Seminar in Saluda, North Carolina during the past summer.

Dr. Ambrose H. Storck recently participated in a panel discussion on abdominal traumas which was held in conjunction with the Clinical Congress of the American College of Surgeons in Chicago.

Assistant Surgeon G. E. Parkhurst has been transferred from the U. S. Marine Hospital to the Quarantine Station at New Orleans.

Assistant Surgeon Alfred L. Holloman has been ordered to the Coast Guard Training Station at New Orleans.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Bureau of Epidemiology of the Louisiana State Board of Health for the week ending October 26, the forty-third week of the year, showed the following diseases reported in numbers greater than ten: 144 cases of syphilis, 35 of cancer, 34 of pulmonary tuberculosis, 25 of pneumonia, 21 of malaria, 20 each of diphtheria and gonorrhea, 18 of undulant fever, and 13 of chickenpox. During this week there were reported three cases of poliomyelitis from Orleans Parish. The remarkably large proportion of patients with undulant fever came practically in toto from Caddo Parish. The following week syphilis again led all reported diseases with 256 instances, followed by 30 of cancer, 29 of pulmonary tuberculosis, 24 of gonorrhea, 21 of diphtheria, and 12 each of malaria, pneumonia, and whooping cough. For this week there were reported seven cases of poliomyelitis throughout the state, three arising in Caddo. For the week which terminated November 9, the following commonly reported contagious and infectious diseases appeared: 145 of syphilis, 30 of cancer, gonorrhea, and uncinariasis, 29 of pulmonary tuberculosis, 23 of pneumonia, 13 of trachoma, and 12 of diphtheria. In this week three additional cases of poliomyelitis were reported from Caddo, three from Orleans and one from Calcasieu. For the last week for which the reports are available it is to be noted that there were tabulated 180 cases of syphilis, 37 of pulmonary tuberculosis, 32 of cancer, 23 of gonorrhea, 20 of pneumonia, 10 each of trachoma and diphtheria. In this week there was an additional case of poliomyelitis reported in Caddo and two in Orleans.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, reports that for the week closing October 19, 1940, there were 136 deaths in the city of New Orleans, of which 79 were white and 57 negro and 13 occurred in children under one year of age. This report was comparable to the report of the previous week. For the next week, ending October 26, there were 145 deaths, divided 82 white and 63 negro and 14 infants. There was a drop of 22 deaths for the week ending November 2. Of the 123 people who died in New Orleans this week, 71 belonged to the white population and 52 to the negro. The infant death rate was unusually high, there being 16 infant demises. A sharp increase 160 deaths being recorded, shared on the percentage basis about equally between the two races. There were 96 white deaths, 64 negro, and again a high infantile incidence of death, 19 in number.

JOSEPH A. ESTOPINAL
(1876-1940)

The death of Dr. Joseph A. Estopinal on October 9, 1940, removed from the ranks of organized medicine a member of long standing.

Dr. Estopinal was born in 1876 and graduated from Tulane University in 1899.

HENRY EDWARD MENAGE
(1872-1940)

The many friends of Dr. Henry E. Menage were shocked to hear of his death on October 23, 1940. Dr. Menage was one of the first specialists in dermatology in the city and for many years has had the reputation, local and throughout the United States, as a man of distinction in his branch of medicine.

A charming person, Dr. Menage will be mourned by his many friends and patients.

DR. A. L. LEVIN

The following memoir was passed at a recent meeting of the Staff of Hotel Dieu:

The Maker has called from our midst a friend, a fellow worker, an enthusiast in his chosen profession and specialty. He passed on in the height of life and as one who was on the brink of the promised land of fame and security.

> "He is not dead, who lives in the hearts of his fellowmen."

Be it resolved that we make our records complete by inscribing upon them the name of a doctor, a scholar, a philosopher and a man, who, though tested in the fire of adversity in youth, extreme sorrow in middle age, carried on to eminent success in spite of the fact that he was not strong in body.

His indomitable will carried him through.

By resolving, we but make known our affection for a fellow worker. We want the world to know how near and dear he was to all of us. His many years of association with the Sisters of Charity, his kind acts to Sisters of all Orders. His willingness to help whether it be for the advancement of medicine or social work in the institution. We hope in a small measure to bring these facts to light. His honors are the result of an unceasing work and application and should be an inspiration to the youth in medicine.

His earnestness and original works are shown by his many articles and papers written and instruments devised. His skillful handling of those given to him by other hands make him an outstanding specialist among doctors and specialists.

Our city, our hospitals will know a void in the passing of this specialist, who while deeply religious, knew no creed, race or color in the administration of his work and his daily life.

Be it further resolved that a copy of these resolutions be sent to the family of Dr. A. L. Levin as a symbol of our appreciation of sorrow at his death and as an expression of profound sympathy.

Further that a copy be sent to the Orleans Parish Medical Society, Louisiana State Medical Society, The Southern Medical Association, National Gastroenterological Association, American Society of Tropical Medicine, American Medical Association, and the Louisiana State University Medical Center.

(Signed): Louis Levy, M. D.
Chairman.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

READ THE BULLETIN

The Woman's auxiliary to the American Medical Association is making a special effort at this time to awaken wide-spread interest in its activities, by increasing the number of readers of the *Bulletin.*

This little booklet is a successor to the *News Letter,* which for many years has kept the officers and board members acquainted with the progress of the auxiliary of all the states. It is published quarterly and contains reports of conventions, places of work, inspirational messages from leaders and news of the hour in the medical world. It is a great help in promoting interest in local auxiliaries, especially where the program is new.

The fall issue contains the inaugural address of Mrs. V. E. Holcombe, the National Auxiliary president; also a message to women from Dr. Van Etten, president of the American Medical Association. Many other interesting items are to be found within its forty pages. It is hoped to have 6,000 women, one-fourth of the membership, reading the *Bulletin* before the year is over. In this way the members may keep abreast of the trends in the medical world and be better able to function as members and leaders of the auxiliaries, local, state and national.

The cooperation of the Advisory Councils and the good will of all members of medical associations is earnestly requested.

Mrs. Jules Myron Davidson,
Circulation Chairman.

NEWS OF LOCAL GROUPS

CADDO PARISH

The Woman's Auxiliary to the Shreveport Medical Society held its first meeting of the season Wednesday afternoon, October 9, at the Woman's Department Club.

After a short business session, presided over by the president, Mrs. C. B. Erickson, Mrs. Harold Quinn talked on "Current Events." This was followed by a lovely musical program rendered by Mrs. L. L. Davidge and Miss Dorothy Erickson.

From an artificially appointed table, centered with a silver ship with sail of yellow marigolds on a blue sea of cellophane, coffee and tea were served.

On September 26 and 27, the Shreveport auxiliary was hostess to the Tri-state Medical Society which was held at the Washington-Youree Hotel. Wives of visiting physicians were entertained at a luncheon.

Mrs. W. M. Hall,
Publicity Chairman.

ST. MARY PARISH

The Woman's Auxiliary to the St. Mary Medical Society held its bi-annual meeting on October 12 at Mrs. F. H. Metz's home.

Mrs. T. E. Dreher presided over the meeting and introduced the guest speaker, Mrs. R. Carl Young, president of the state auxiliary, who gave a most interesting address on the aims and projects of the auxiliary. Mrs. A. C. Kappel read an article entitled "A Hundred Years of Medicine."

The auxiliary adopted the following projects, namely, distribution of *Hygeia* in the schools and the donation of two layettes through the Health Center.

Two new members, Mrs. L. J. Supple and Mrs. D. J. Daspit, were introduced.

The officers and chairman of standing committees were presented as follows: president, Mrs. T. E. Dreher; vice-president, Mrs. C. M. Horton; secretary-treasurer, Mrs. F. H. Metz; press and publicity chairman, Mrs. D. J. Daspit.

Mrs. D. J. Daspit,
Publicity Chairman.

SECOND DISTRICT

The Second District Medical Auxiliary met at the home of the president, Mrs. J. Earle Clayton, of Norco, on Tuesday, October 15.

The business meeting was followed by a delightful buffet luncheon.

Mrs. Steve Campbell, *Hygeia* chairman, requests that doctors of the second district send their subscriptions direct to her.

MRS. P. A. DONALDSON,
Publicity Chairman.

Respectfully submitted,
MRS. JONAS W. ROSENTHAL,
Press and Publicity Chairman.

BOOK REVIEWS

Handbook of Skin Diseases: By Leon H. Warren, B. A., M. D., M. Sc. (Med.). New York, Paul B. Hoeber, 1939. Pp. 321. Price $3.50.

This is a synopsis of 252 skin diseases arranged in alphabetical order, with synonyms and eponyms, and cross-indexed for ready reference. The diseases are described in a pithy, concise manner, which aids in diagnosis; principles of therapy are given in a way that makes this little manual a most useful one.

BARRETT KENNEDY, M. D.

The Electrocardiogram in Congenital Cardiac Disease: By Maurice A. Schnitker, B. Sc., M. D. Cambridge, Mass., Harvard University Press, 1940. Pp. 147. Price $3.00.

This book of 130 pages, divided into six chapters, is based on the study of all available instances of congenital heart disease recorded in the literature since 1915 in which an electrocardiogram was illustrated and autopsy findings were available, including 37 cases from the Boston Hospitals. The total series numbered 109 cases: 106 with autopsy reports and one proved by surgical operation.

The cases have been divided into three groups: those without cyanosis, those with late cyanosis, and those with persistent cyanosis. There is a short history of each case, physical and x-ray findings and reproductions of the electrocardiograms interpreted by the author. There are many valuable points on physical signs and differential diagnosis.

With only a very few exceptions can one tell a congenital heart disease from an acquired condition by looking at the electrocardiogram. Dextrocardia with reversed chambers is about the only one.

In this book the author points out that several types of curves would point to congenital heart disease. Marked right axis deviation suggests pulmonary stenosis. The axis deviation seems to be less marked if there is associated interventricular defect, as this lessens the strain on the right ventricle. This bears out the general law of the electrocardiogram that the appearance of the curves will depend upon the chamber of the heart under the greatest strain. There are many possible combinations in congenital heart disease. It was found that the presence of tall pointed P waves or auricular fibrillation in a case of congenital heart disease would point to interauricular septal defect. Seven of the eight cases of congenital heart block studied by the author had interventricular septal defect. In interventricular defects, in addition to conduction defects, curves showing large diphasic QRS complexes are common. QRS complexes of low amplitude with coronary types of T waves in a child or a young adult would make one suspect some anomaly of coronary arteries.

It is interesting to note that 26 per cent of cases reported here showed evidences of rheumatic valvular disease. Hypertension is not common in congenital heart disease except in coarctation of the aorta. Ten cases of this series had pain which was thought to be angina pectoris. The reviewer has seen one case of a five year old child with congenital heart disease in which cardiac pain was strongly suggested.

The reviewer has no hesitation in recommending this book to any one interested in this subject.

J. M. BAMBER, M. D.

A Method of Anatomy; Descriptive and Deductive: By J. C. Boileau Grant, M. C., M. B., Ch. B. Baltimore, The Williams and Wilkins Company, 1940. Pp. xxii + 794; figs. 651. Price $6.00.

Commenting in this Journal on the first edition of Grant's book (1937), the present reviewer characterized it as follows: "An innovation in the field of anatomical text-books. Less than a third of the bulk of the familiar texts of gross anatomy, with original simplified illustrations and above all differing in the method of presenting subject matter, 'A Method of Anatomy' challenges the traditionally plethoric teaching of anatomical rote . . . Emphasis is given to developmental, physiological and practical considerations, and the reader is constantly reminded of significant deductions to be drawn from observed structure." This second edition, like the first, was planned by the author to provide "a working instrument designed to make anatomy rational, interesting and of direct application to the problems of medicine and surgery." It can fulfill that aim even better, with improvements in text matter and illustrations suggested by an experience of three years.

HAROLD CUMMINS, PH. D.

A Handbook for Dissectors: By J. C. Boileau Grant and H. A. Cates. Baltimore, The Williams and Wilkins Company, 1940. Pp. xi + 239; figs. 9. Price $2.50.

This little volume is a guide to procedure in dissection. It is designed for users of the senior author's "A Method of Anatomy," to which the dissector is referred repeatedly by page references to text descriptions and illustrations. Directions for dissection are orderly and clearly stated. Effort is made to distinguish structures of greater and lesser importance by the use of different type faces, bold-face and italics respectively. The nine figures illustrate prescribed incision lines of different regions.

Harold Cummins, Ph. D.

Combined Textbook of Obstetrics and Gynecology: Rev. and rewritten by J. M. Munro Kerr, LL. D., M. D., F. R. F. P. and S. (Glas.), F. R. C. O. G., and others. Baltimore, Williams and Wilkins Co., 1939. Pp. 1192. Price $12.00.

This joint text of obstetrics and gynecology by nine English authors, now in its third edition, has been brought up to date in the latest developments in obstetrics and gynecology, particularly in the endocrine field. All of the recent investigation in this field has been briefly portrayed.

While the combination of these two subjects is desirable, in this instance the gynecologic half of the book is too briefly handled in comparison to the amount of space given to obstetrics. Whereas obstetric procedures are described somewhat in detail, gynecologic surgery is very briefly mentioned.

There is some duplication of information in the book, which the combination obviously had hoped to avoid, e. g., anatomy is considered under two heads and in certain sections endocrinology is considered under different headings. The endocrinologic section is not given as important a role as is found in American texts.

In such a combination of gynecology and obstetrics both fields must necessarily be presented in a more brief manner than in textbooks devoted to the single subjects. For this reason this text is of value to the student but cannot be recommended as a valuable volume for advanced study in either field.

John C. Weed, M. D.

The March of Medicine: Edited by a Committee on Lay Lectures to the Society of the New York Academy of Medicine. New York, Columbia Univ. Press, 1940. Pp. 168. Price $2.00.

The New York Academy of Medicine has for years sponsored a successful series of lay lectures on various phases of the history of medicine. This volume reprints those given in the session 1938-39. It contains, in all, six lectures, three of which this reviewer found to be particularly interesting, namely: "Health in Elizabethan England"; "The Story of Insanity"; and "Not So Long Ago."

This volume is interesting and should appeal to physicians as enjoyable "beside reading." It should also hold the attention of any who have broad interests in the history of medicine.

B. Bernard Weinstein, M. D.

The Surgery of the Alimentary Tract: By Sir Hugh Devine. Baltimore, Williams and Wilkins Co., 1940. Pp. 1046. Price $15.00.

Any publication by Sir Hugh Devine, who has contributed so much to present day surgery through his advocacy and popularization of dysfunctioning the large bowel as a preliminary to operation on the large intestine, quite naturally attracts attention and deserves consideration. This 1022 page volume is a highly personalized book in which the author presents records and conclusions from his vast clinical experience. It is by no means a complete presentation of the most modern developments and procedures but is rather the author's surgical autobiography. In some sections the material is awkwardly arranged, and although purporting to be a book designed for postgraduates, there is included such elementary matter as knot-tying illustrations. There is a notable paucity of references to the American surgical literature in which there are adequate discussions of many of the developments in surgery which are lacking in this book.

Ambrose Storck, M. D.

Minor Surgery: By Frederick Christopher, S. B., M. D., F. A. C. S. Philadelphia, W. B. Saunders Co., 1940. Pp. 990. Price $10.00.

This volume of approximately 1,000 pages, with 639 illustrations, covers adequately what might be classed in the category of minor surgery. It is for that subject almost an exhaustive summary and of necessity teaches many things which certainly, without exaggerating the seriousness of the condition or even the technical difficulties, may be classed under major surgery. The author adequately covers the treatment of wounds and quotes extensively, and fortunately verbatim in many instances, from authors whom he considers representative authorities on the treatment of wounds or other subjects.

Traumatic surgery is discussed fully in the treatment of wounds and fractures. The section on fractures is very good and the illustrations show most modern methods even in the care of fractures of the spine and most of the fractures of the extremity. Open reductions for fractures of the hip are not included.

The reviewer notices with pleasure the very successful effort to keep the book modern. For example, the author has included the latest data on the subject of vascular diseases of the lower extremity. A chapter is devoted to instructions for the surgical intern with suggestions as to how to manage certain conditions and what he should do when confronted with the necessity of making decisions in the hospital.

One might criticize lightly the chapter on transfusions. It is not on a parity with other chapters. The illustrations showing obsolete methods had better be devoted to illustrations of the direct and indirect methods which are in common use in most hospitals today. It is true that such methods as the vacoliter flask are illustrated with acknowledgment given to the proper medical author; nevertheless, similar apparatus has been perfected by certain commercial houses and is in general use, so much so, that an intern in most cities would probably encounter a Baxter transfusion set more readily than a similar flask made by the hospital itself. The direct methods of transfusion illustrated, namely the Scannel and the direct paraffin lined tube with a pressure bulb, when compared to some of the more modern transfusion sets for direct transfusion are of historical interest and even then of only minor historical interest as far as transfusions are concerned.

The student and practitioner will gain reliable worthwhile information from this book. It will be of value in the management of the majority of cases of a surgical nature which the general practitioner might wish to handle.

Howard Mahorner, M. D.

Graduate Medical Education: Report of the Commission on Graduate Medical Education. Chicago, University of Chicago Press, 1940. Pp. 304. Gratis.

This volume is a report of the Commission on Graduate Medical Education which was organized on December 4, 1937. It undertakes to "formulate the educational problems and principles involved in the continuation of medical training for a period of years after graduation and the adequate training of specialists, and to make recommendation for methods whereby those in practice, general and limited, may keep abreast of new developments in diagnosis, treatment and prevention."

The internship, the residency, specialism, the specialty boards, postgraduate education (intra- and extramural) and other pertinent subjects are thoroughly covered. The book is replete with valuable suggestions and food for thought, and is delightfully "readable." While some important efforts in these fields are not even mentioned, on the whole the subject is very well covered.

Everyone interested in "continuation study" for physicians, in any of its many forms, should study this report. Logically, this would include every physician in this country, but should by all means include all teachers of medicine, whether undergraduate, graduate, or postgraduate.

H. W. Kostmayer, M. D.

Psychiatric Clinics for Children, with Special Reference to State Programs: By Helen Leland Witmer, Ph. D. New York, Commonwealth Fund, 1940. Pp. 437. Price $2.50.

The author of this excellent, complete, authoritative sourcebook is a distinguished scholar and an educator. She has utilized a vast amount of valuable material and has expended much well directed effort in analyzing it and estimating its intrinsic worth and practical applicability.

To provide necessary information for those desiring to make child guidance clinic service available throughout the country, The National Committee for Mental Hygiene arranged for a study and an appraisal of programs offering such service on a state-wide basis. A review of the philosophy, objectives, practices and achievements of clinical child psychiatry was required. The results are presented by Dr. Witmer in this volume.

The subject matter of "Psychiatric Clinics for Children" is offered in three parts. Part I describes the theoretical and historical background of clinical child psychiatry in the United States and the cultural setting in which it operates. Part II is concerned with a survey of state-financed clinics. It tells how they are conducted and describes and evaluates typical policies. Part III discusses principles for future programs. It suggests that many of the difficulties of such clinics are traceable to lack of well-defined objectives and examines the alternative possibilities in the light of modern psychiatric theory and practice.

This treatise is a notable contribution in the field of clinical psychiatry. It has great merit and presents all angles of the stiuation clearly and concisely. It deserves the attention, interest and approval of those who plan and organize clinics for children and who would understand the general theory and problems of child guidance.

The book ends with a list of basic requirements which, experience has proved, must be met if a program of clinical psychiatry is to be successful and with the statement that "mental hygiene to be most effective must be reflected in a way of life in the community as a whole."

C. P. May, M. D.

Differential Diagnosis in Internal Medicine: By Otto Naegeli. Chicago, S. B. Debour, 1940. Pp. 726. Price $10.00.

This posthumous work by a famous physician should be of interest to all internists. The language and phraseology of the translation tends to make the book a little difficult reading in places. One is also struck by the lack of references to American and English authors. The most fascinating thing about the book is the personal element. It is an expression of the author's own wide knowledge and experience. Throughout the work the author inserts short case histories illustrating certain points in differential diagnosis. His method of arriving at a diagnosis is not by a process of simple elimination but rather by dividing diseases into groups; for example inflammations, intoxications, malignant tumors, systemic hyperplasias of the lymphatic or myeloid apparatus. After the offending group has been determined upon, then the differentiation is made between the different members or diseases found in the group. How extensive Professor Naegeli's experience has been is demonstrated by the fact that the book takes up some 700 odd pages. The reviewer recommends it to all physicians interested in differential diagnosis.

RANDOLPH LYONS, M. D.

Clinical Heart Disease: By Samuel A. Levine, M. D., F. A. C. P. Philadelphia, W. B. Saunders Company, 1940. Pp. 495. Price $6.00.

The second edition of this popular book contains all of the material present in the first (1936) and has been enlarged by the addition of one chapter, 64 pages of text, 12 figures, and by amplification of the index.

The new material covers briefly but adequately the recent advances in cardiology. It includes, as well, a chapter on the medico-legal aspects of heart disease, a sub-chapter on the nature of circulatory failure, another sub-chapter on the rarer forms of heart disease, such as beri-beri heart, cor pulmonale, and others, several pages on the action of digitalis, and a description of the new approved technic and nomenclature for the precordial lead.

Those familiar with the recommendations contained in the first edition will be interested to learn that the author now rarely advises thyroidectomy for angina pectoris and that he only occasionally prescribes quinidine following acute myocardial infarction. Injections of mercury are still advocated in the treatment of syphilitic heart disease, and no mention is made of bismuth.

There are several improvements of a general nature noted in the new edition. The text actually begins on page 1, rather than on page 17, as in the first edition. The first person pronoun, "I" appears less frequently. Phraseology, and sentence and paragraph construction are better, although grammarians may still find fault with the use of nouns in place of adjectives (as in "mercury diuretics") and with the use of "finally" to introduce several different paragraphs in the same chapter.

It is gratifying to find that wherever the first edition reserved judgment until further experience had accumulated, the second edition nearly always contains a progress note bringing the matter up to date. However, in spite of a four year interval between editions, the words, "recent" and "recently," in many statements have been carried over into the second edition unchanged. This fault is always annoying to the reader and may be carried to such ridiculous extremes as in one standard text, the 1931 edition of which contains the expression "recently" with a footnote dating the reference 1903.

Although a new edition of this work is welcome, the old edition is by no means rendered obsolete, for the very best chapters remain essentially unaltered. In no other book on heart disease can one find so clearly portrayed such subjects as the significance of the systolic murmur, prognosis in heart disease, the patient with heart disease as a surgical or obstetrical risk, paroxysmal rapid heart action, and the correlation of clinical and electrocardiographic findings.

This book is highly recommended to all who wish to improve their knowledge of clinical heart disease.

EDWARD MATTHEWS, M. D.

Congenital Cleft Lip, Cleft Palate and Associated Nasal Deformities: By Harold Stearns Vaughan, M. D., D. D. S., F. A. C. S. Philadelphia, Lea and Febiger, 1940. Pp. 210. Price $4.00.

This compact volume is a valuable contribution because it includes the basic fundamentals involved in the proper treatment of two distressing congenital defects: cleft lip and cleft palate. This edition includes and brings up to date the worth-while developments in treatment and the refinements of operative technic which are of proved value. The author does not go into too much detail in specific procedures for the book apparently is designed to be of practical reference value to the general surgeon and the pediatricians.

NEAL OWENS, M. D.

Obesity and Leanness: By Hugo R. Rony, M. D. Philadelphia, Lea & Febiger, 1940. Pp. 300. Price $3.75.

This is an excellent and comprehensive review of this subject. The author expounds his feeling that the subject is not one of calories and metabolism alone, but a much more complicated affair.

The book is divided into three sections, namely, a synopsis of the physiology of fats and fat tissue, the pathogenesis of obesity and leanness, and the clinical aspects of obesity and leanness.

To anyone interested in medicine, this is a clear presentation of the pathology and clinical aspects of the subject. It is a pleasure to read a book on obesity and leanness without having to wade through long lists of diets; the reader feels that every angle has been elucidated.

SUZANNE SCHAEFER, M. D.

PUBLICATIONS RECEIVED

F. A. Davis Company, Philadelphia: Taber's Cyclopedic Medical Dictionary, by Clarence Wilbur Taber and fourteen associates.

The Williams & Wilkins Company, Baltimore: Fractures and Dislocations, by Edwin O. Geckeler, M. D.

New Orleans Medical
and
Surgical Journal

Vol. 93 JANUARY, 1941 No. 7

THE SIGNIFICANCE AND SURGICAL MANAGEMENT OF ULCERATING LESIONS OF THE STOMACH*

HOWARD K. GRAY, M. D.†
ROCHESTER, MINN.

The seriousness of cancer of the stomach cannot be overstated, since in the light of present knowledge it causes more deaths than cancer in any other single organ in the body. As Dr. Ochsner has shown, however, primary cancer of the lung is being recognized with greater frequency than ever before, and on the basis of the information that has been obtained from those who are particularly interested in this field, it is possible that primary cancer of the lung occurs as often, if not more frequently, than cancer of the stomach. It is also recognized that early removal of the malignant lesion is the only known method of cure. Unfortunately, in the majority of patients encountered by the surgeon, the disease is advanced too far to permit complete removal of the involved tissue and it is because of this fact that I wish to emphasize five points which may be of some benefit in the recognition of the lesion at a stage at which operative removal may be possible in a higher percentage of instances.

IMPORTANCE OF EARLY DIAGNOSIS

The importance of early diagnosis has been emphasized repeatedly. It is interesting, in reviewing the literature on cancer of the stomach published in the last thirty years, to note the many tests that have been advocated for the diagnosis of cancer of the stomach, many of which have been extremely ingenious in nature. A listing of the more important ones of these may be seen in table 1. With the advent of roentgenography and gastroscopy, most of the other methods of diagnosis of this particular disease have been abandoned with the exception, of course, of the interpretation of clinical symptoms and observations. Taking these various factors into consideration, it may be interesting to note the general trend that has occurred at The Mayo Clinic referable to the percentage of patients suffering from malignant neoplasms

TABLE 1

AIDS IN DIAGNOSING CANCER OF THE STOMACH, 1910 TO 1940

1. Interpretation of clinical symptoms and findings.
2. Digestive leukocytosis.
3. Specific proteolytic enzymes.
4. Lactobacillus of Boas-Oppler (Boas-Oppler bacillus).
5. Wolff-Junghans test.
6. Presence of lactic acid in gastric contents.
7. Einhorn's thread tests.
8. Anemia.
9. Concentration of hydrochloric acid in gastric contents.
10. Occult blood in stools.
11. Roentgenography.
12. Gastroscopy.
13. Intragastric photography.
14. Miscellaneous:
    a. Increase in serum nitrogen.
    b. Sugar tolerance tests.
    c. Urinary excretion of salt.
    d. Reflex esophageal spasm.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

†From the Division of Surgery, The Mayo Clinic, Rochester, Minnesota.

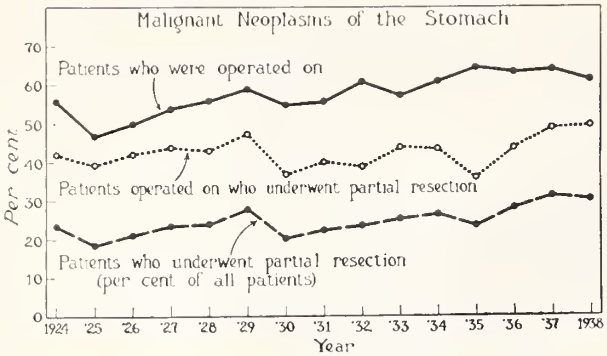


Fig. 1. Percentage of all patients who had malignant neoplasms of the stomach who were operated on, and percentage of all patients who underwent partial resection. Percentage of patients operated on who underwent partial resection, fifteen-year period, 1924 through 1937.

of the stomach who are operated on, and the percentage of these patients who were operated on who underwent partial resection of the stomach. As will be seen in figure 1, there has been a gradual increase during a period of fifteen years in the incidence of patients suffering from cancer of the stomach whose lesions were thought to be within operable limits and a corresponding increase in the percentage of patients who underwent partial resection of the stomach. The increase in the rate of resectability was accomplished without increase in the mortality rate, so that during the aforementioned relatively short period, at least 10 per cent more patients who had cancer of the stomach were operated on and of these the lesions of at least half were resectable.

In spite of this encouraging increase, however, the picture is a rather dismal one, for one cannot lose sight of the fact that of all patients suffering from cancer of the stomach now being encountered, in only approximately 25 per cent is the lesion resectable. The percentage of five year cures in this group (that is, patients whose lesions are resectable) has been reported variously from different clinics, but it would seem that from 25 to 30 per cent of the patients whose stomachs have been resected for cancer will be alive at the end of five years. If the fact is considered that only 25 per cent of those patients who have undergone resection will be alive at the end of five years, and that in only 25 per cent of all patients suffering from carcinoma of the stomach are the lesions resectable, approximately 6 per cent of all patients now being encountered suffering from cancer of the stomach will be alive at the end of five years. On the basis of these figures, it is obvious that the significance of the situation cannot be overstated.

The first point I should like to emphasize is the fact that there is no clinical syndrome characteristic of cancer of the stomach. Unfortunately, the tendency has been to wait until a rather characteristic symptom complex has been recognized before considering the possibility of presence of a malignant lesion of the stomach. This general tendency on the part of practicing physicians has been contributed to by the clinical picture of carcinoma that is being taught widely to the medical students at present. Unfortunately, the clinical picture is that of advanced carcinoma and if the utmost for the patient is to be accomplished, the disease must be recognized long before characteristic symptoms develop. The condition of two patients may be reported to illustrate the fact that a malignant or ulcerating lesion may be present and that no symptoms may be recognized by the patient.

CASE NO. 1

A minister, aged 67 years, registered at The Mayo Clinic on January 19, 1938, for the primary complaint of prostatic hypertrophy. He had experienced no gastrointestinal symptoms and at complete examination, the only observations of note other than symmetrical enlargement of the prostate gland were marked hypochromic anemia and occult blood which was noted in the patient's stools. On roentgenologic examination of the stomach for determination of the source of the blood in the stools, a malignant sessile polyp, approximately 7 cm. in diameter with ulceration and attachment to the middle third portion of the stomach, was noted (fig. 2a). On January 29, 1938, partial gastrectomy was done and gastrointestinal continuity was reestablished by means of posterior Polya type of anastomosis. Pathologic examination of the tissue removed revealed multiple gastric polyps, the largest 8 by 4 by 3.5 cm. In several of these polyps there was malignant change of a low grade (fig. 2b).

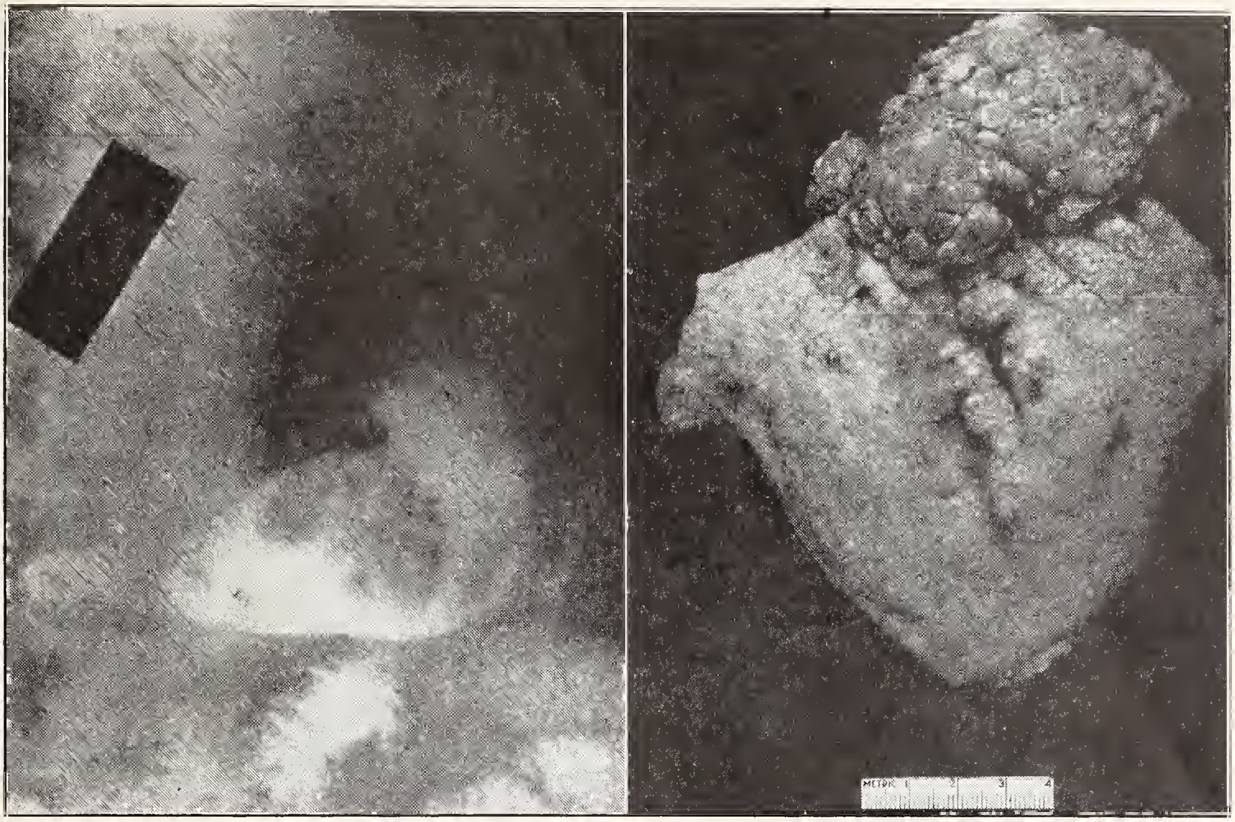


Fig. 2a. Roentgenogram showing a large sessile polyp in the stomach, with ulceration and attachment to the middle third part of the stomach; b, photograph of gross specimen of same lesion as shown in figure 2a, removed surgically; multiple gastric polyps were present, the largest being 8 by 4 by 3.5 cm.; several were malignant.

CASE NO. 2

A salesman, aged 54 years, registered at the clinic on December 16, 1939. In 1937 he had received therapy for syphilis of the central nervous system and he had returned for malarial therapy as advised. He had experienced no symptoms referable to the stomach, except that occasionally he had mild gaseous dyspepsia. While he was receiving malarial therapy (January 2, 1940) melena developed and the patient vomited blood on several occasions. When his condition had improved sufficiently to warrant roentgenologic examination, an operable ulcerating carcinoma on the posterior wall of the stomach at the level of the angle was discovered. Partial gastrectomy was performed on January 16, 1940 and gastrointestinal continuity was reestablished by means of a posterior Polya type of anastomosis. On pathologic examination this ulcerating lesion fortunately was found to be benign (fig. 3) and the patient was granted his surgical dismissal on February 8, 1940.

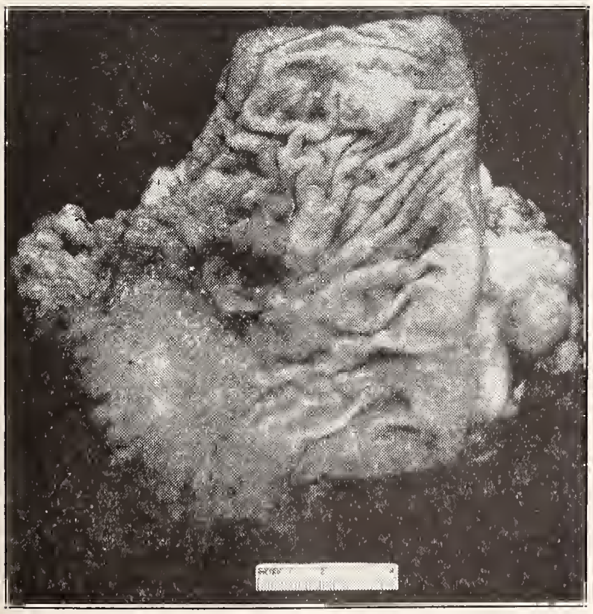


Fig. 3. Photograph of gross specimen removed surgically; benign gastric ulcer in syphilitic patient, diagnosed roentgenologically as ulcerating carcinoma.

DISCUSSION

The immediately foregoing case is included to emphasize not only the fact that an ulcerating lesion was present in the stomach without causing any symptoms, but also to illustrate the fact that it is impossible to ascertain, in many instances, from a roentgenologic standpoint whether an ulcerating lesion of the stomach is benign or malignant. In evaluating the condition of this patient, also, the possibility of a syphilitic gastric lesion had to be considered, but because of the presence of a lesion in the stomach in spite of prolonged antisyphilitic treatment, the possibility of a syphilitic lesion was minimal.

PERSISTENCE OF SYMPTOMS

I am impressed by the frequency with which persistence of symptoms, referable to the stomach over a long period as originating from a malignant lesion of the stomach, is disregarded. In a review of the clinical histories of a large number of patients who had cancer of the stomach, I[1] have been impressed by the high incidence of patients who had experienced symptoms referable to the stomach for a long time, in many instances for a period of many years. Approximately 35 per cent of patients in this group had experienced symptoms for a period of more than one year, and 10 per cent of patients had experienced symptoms for more than five years. Two types of symptom complex were noted; first, one in which symptoms referable to the stomach had been present without change for varying lengths of time and, second, one in which similar symptoms had been present for varying lengths of time, but in which the patients had experienced a change of symptoms within relatively recent time. The latter has been thought to be of diagnostic importance and undoubtedly should be considered with utmost seriousness. In about 50 per cent of patients the symptoms in almost every respect were similar to those experienced by patients who had benign ulcerating lesions of the stomach or duodenum. The discouraging observation was the fact that a very high percentage of these patients had been treated for an indefinite period without adequate roentgenologic or gastroscopic examination to determine the exact nature of the lesion, and in many instances it was not until the disease had progressed to an advanced stage that the undoubted diagnostic value of such an examination was afforded.

X-RAY EXAMINATION

As has been mentioned previously, in many instances it is impossible to determine definitely the exact nature of an ulcerating lesion of the stomach by means of roentgenologic examination. This point is well recognized by competent roentgenologists and even in expert hands it has been found that approximately 6 to 9 per cent of small ulcerating lesions of the stomach which have been diagnosed by means of roentgen rays as being benign will prove to be malignant when the lesion has been removed surgically. Because of this and also because of the fact that the gastroscopist also is often unable to ascertain the exact nature of a lesion, the malignant potentiality of a gastric ulcer must be considered in every case until its benignancy has been proved.

In the experience of clinicians of The Mayo Clinic, approximately 75 per cent of patients who have gastric ulcers are operated on immediately after the diagnosis of gastric ulcer has been established. For the remaining 25 per cent a rigid program of medical treatment is outlined and the lesion is checked repeatedly by means of roentgen rays at not longer than fortnightly intervals, until all evidence of the presence of an ulcerating lesion has disappeared from the stomach. The fact that the patient may improve clinically is not sufficient to deny the presence of cancer, for the inflammatory reaction associated with a malignant ulcer may subside under medical management while the malignant process may progress to the point of inoperability during the time the patient is under medical management. Although there are many diagnostic features of carcinomatous and benign gastric ulcers which may be of definite benefit on a percentile basis, it should be emphasized that these features are not at all constant and regardless of such considerations as the patient's age, the quantity of free hydrochloric acid in the gastric contents, the irregularity of the symptom complex, the roentgenologic appearance of the lesion and its situation, the lesion may be malignant.

It has been the general impression that an ulcerating lesion of the stomach which has shown improvement on roentgenologic examination by competent roentgenologists will prove to be benign, and not infrequently patients will be permitted to continue with such medical management for an indefinite period uder the false impression that this improvement cannot be associated with a malignant lesion. To emphasize the fact that a malignant lesion may show definite improvement, a report of an illustrative case follows.

CASE NO. 3

A man, aged 61 years, registered for the first time at the clinic on November 1, 1937, complaining of cramping distress in the upper portion of the abdomen which occurred one to two hours after nearly every meal. This sensation had been present intermittently for many years, but during the few months prior to his registration, the distress had occurred more regularly and occasionally had awakened him at night. The pain always stopped when he ate. There had been no complicating features. Roentgenographic examination revealed a gastric ulcer about 1 cm. in diameter situated on the posterior gastric wall opposite the angle of the stomach. Total acids measured 16 units (Topfer's method) and there was no free hydrochloric acid in the first two specimens of gastric contents obtained after ingestion of fractional test meals. The patient promised to return in two weeks for a trial of medical treatment in the hospital and instructions were given him for care in the meantime. It was not until four months later that he reappeared (March 9, 1938) and he stated at that time that he had been feeling somewhat stronger. Occasional distress occurring between meals had been controlled by his taking milk, and for several weeks there had been no nocturnal pain. Roentgenographic examination on March 9, 1938 revealed a shallow, posterior crater on the site of the ulcer as the ulcer had appeared at the last examination of the patient. The gastric portion of ulceration appeared to be swollen. Gastroscopic examination showed a gastric ulcer measuring approximately 1 cm. in diameter, situated on the posterior wall of the stomach above the angle. There was some infiltration of the gastric wall above the ulcer, but from a gastroscopic standpoint the lesion appeared to be benign.

Because of his clinical and roentgenographic improvement, the patient was allowed to continue medical management with implicit instructions to return again in three to four weeks for reexamination. Again he failed to heed advice and he did not return until two years later, on April 1, 1940. His chief complaints at this time were dyspnea, faintness, and palpitations which were initiated by exertion. For six months prior to returning to the clinic he had experienced occasional episodes of nausea and vomiting associated with some amount of dull pain in the left side of the abdomen. Roentgenographic examination on April 1, 1940, revealed an ulcerating carcinoma situated in the middle third portion of the stomach. Total acids measured 28 units and free hydrochloric acid measured 18 units (Topfer's method). Operation was advised and was carried out on April 6, 1940, at which time partial gastrectomy and partial duodenectomy were done. On the greater curvature of the stomach 4 cm. above the pylorus was found a grade 2 ulcerative adenocarcinoma (8 by 8 by 4 cm.), with extensive involvement of the overlying serosa and extensive involvement of the regional lymph nodes along the greater curvature of the stomach. The pathologists could find no evidence of the previous existence of a chronic ulcer on the lesser curvature of the stomach. The patient experienced an uneventful convalescence and was granted his surgical dismissal on April 25, 1940.

Such a situation as that just described is not an infrequent occurrence, and in this particular instance the case is not an isolated one. Undoubtedly there are many artefacts which may result in a misinterpretation of the appearance of an ulcerating deformity in the stomach, but it has also been shown that malignant tumefaction which has originated in the edges of an ulcer may progress to a point at which the crater of the ulcer has been completely filled and cannot be recognized by means of roentgen rays.

CONCLUSIONS

May I emphasize again the important point that if any improvement is to be achieved in the rate of operability and of resectability for patients who have cancer of the stomach, it must be recognized: (1) That there is no symptom complex characteristic of cancer of the stomach, (2) that the possibility of presence of a malignant lesion of the stomach must be considered in any patient who has persistence of any symptoms referable to the stomach which do not respond immediately to ordinary measures, (3) the fact that a patient may have had symptoms for a long period is no assurance that a malignant lesion of the stomach is not present, (4) that in many instances it is impossible to ascertain the exact nature of a small ulcerating lesion of the stomach and that it should be considered malignant until its nature has been definitely proved otherwise and (5) that in spite of the fact that a small ulcerating lesion of the stomach may improve under the supervision of competent radiologists, the lesion still may be malignant.

REFERENCE

1. Gray, H. K.: The clinical and pathological factors influencing the ultimate prognosis following resection for carcinoma of the stomach, Ann. Surg., 97:882, 1933.

DISCUSSION

Dr. J. D. Rives (New Orleans): Dr. Gray's paper is a very excellent and timely one, for the subject of early treatment of cancer of the stomach is always timely. It is rather embarrassing, however, to discuss a paper by a member of The Mayo Clinic staff. The amount as well as the quality of their work makes it impossible for us to add very much to what they report. All that I can do is to supplement what Dr. Gray has said by giving you an idea of the results obtained in the rest of the country as compared to those at The Mayo Clinic.

Reports from the large general hospitals of the country show that the operability in the United States as a whole is less than 50 per cent, that is, if we apply the term "operable" only to those patients in whom all gross evidence of the disease can be completely removed. In some rural communities, as the reports of Foss show, this figure is as low as 5 per cent.

The operative mortality of gastric resection for cancer of the stomach in the large general hospitals in the United States is approximately 50 per cent. This extremely high mortality is due in part, of course, to a lack of skill in surgical management, but this is by no means the most important factor. To a large extent, it is due to the fact that patients with carcinoma of the stomach come to these surgeons, as they do to us in New Orleans, in such terrible condition that they stand operation very badly. If we take 100 hypothetical cases of carcinoma of the stomach and analyze their life expectancy on the basis of the reports which I have mentioned, we find that only two would be alive after five years. The maximum operability and the minimum operative mortality can be attained only by early recognition and early radical treatment of these patients while they are still in a satisfactory general condition. It is possible to attain an operative mortality of less than 10 per cent, as is demonstrated by the reports of the mortality of gastric resection for peptic ulcer.

The importance of the relation of carcinoma of the stomach to gastric ulcer lies in the fact that the highest curability of cancer of the stomach will necessarily be in those cases in which a diagnosis of a benign lesion has been made. Dr. Gray has emphasized the fact that there is no infallible method by which the clinician can determine whether or not a given gastric ulcer is malignant. I am sure that in the country as a whole the correct diagnosis is made less frequently than it is at The Mayo Clinic. Not only is it impossible to tell whether or not the lesion is malignant before operation, but it is also frequently impossible to do so at the time of operation. I once had the embarrassing experience of doing two gastric resections in one week in the first of which I concluded that the lesion was benign, whereas the pathologist found it was malignant, and in the second of which I concluded that the lesion was malignant, and the pathologist found that it was benign. This leads to the inevitable conclusion, which Dr. Gray has emphasized, that if an ulcer of the stomach is believed to be benign but does not heal completely after a brief period of adequate medical care, it should be treated surgically, and that the only proper surgical treatment of a gastric ulcer is resection of the stomach, carried out as if the lesion were known to be malignant.

Dr. Mims Gage (New Orleans):

I will make a few remarks concerning the ulcer itself. This is believed about cancer of the stomach—cancer of the stomach is similar to cancer of other mucous membranes because it is on the surface, primarily epithelial surface. There are very few carcinomas of the stomach infiltrating the wall. The fundamental factors that work in precipitation of development of benign peptic ulcers are present in carcinoma, destruction of mucous membrane. All of the classical activity that we find in a benign ulcer is present in the malignant ulcer. Therefore the symptoms of carcinoma, that is the early symptoms, would be the same as the early symptoms of peptic ulcer. Peptic ulcers or benign ulcer syndromes naturally have a tendency to improve. Not only do the clinical symptoms improve but the ulcer itself improves. Because the pathologic processes which are responsible for ulceration in peptic ulcer are also present in early carcinoma of the stomach, the ulcer heals.

That is one reason why patients treat themselves for a time at home and then go to an internist and he treats for ulcer and the patient gets relief. This goes on for a long period of time. A large number of individuals who have carcinoma investigated at the clinic have had symptoms for years. The only thing for us to do in cases of individuals past a certain age, who have had no previous gastric symptoms and begin to have symptoms, is to look upon them as malignant. All patients with peptic ulcer symptoms of benign ulcer lasting for over a period of years and start to have radical change, should immediately be suspected as carcinoma. That is the only possible way to increase the operability of carcinoma of the stomach.

I agree most heartily that we should use every possible method that we have at our disposal to make a diagnosis. The patient should not be treated over a long period of time because he improves. I am convinced that patients presenting themselves with a history and clinical manifestations of gastric ulcer should be operated upon immediately and have widespread gastrectomy.

I would like to say one word about syphilis and malignancy. Unfortunately I have knowledge of five cases of carcinoma of the stomach with symptoms of ulcer and at the same time positive Wassermann reaction. All improved and then died of inoperable carcinoma of the stomach. Even though the surgeon is well founded in pathology it is almost impossible to make diagnosis in early cases.

Dr. Ochsner removed a stomach in an individual who had an ulcer that did not look right. The best thing in such cases is gastrectomy. He handed me the tissue and it had all the characteristics of benign ulcer. I said, "If that is carcinoma I will eat it." It did turn out to be carcinoma, although it had characteristics of benign ulcer.

Dr. A. L. Levin (New Orleans): Over a quarter of a century ago, Boas, the pioneer in gastrointestinal diseases laid stress on the significance of the constancy of occult blood as valuable evidence of malignancy in the gastrointestinal tract. The presence of occult blood in the gastric contents, in my opinion, is of greater value than the occult blood of the stool. On numerous occasions I have evaluated the Boas principle on cases of gastric ulcer versus gastric cancer. If a patient with gastric ulcer is being treated according to the best accepted methods and the occult blood of the gastric contents remains positive, I suspect malignancy and advise an exploratory operation. Boas went even further and stated that if a case of gastric ulcer has been relieved of all symptoms and the positive occult blood became negative, the patient should return regularly for occult blood tests. If and when the occult blood becomes positive again, exploration should be advised. I have followed this advice and was seldom disappointed.

This guide, together with gastroscopy and x-ray studies, should help in making an early correct diagnosis of malignancy in gastric lesions.

Dr. Gordon McHardy (New Orleans): I believe that the internist should accept the blame for the incidence of inoperability that the surgeon encounters in gastric carcinoma. I think the author and the discussing surgeons have spoken very conservatively and are very kind in not claiming exemption by accusation. The general practitioners, internists and gastroenterologists should be responsible for the surgeon getting patients at a sufficiently early stage that they may be operable and that, thereby, curability may be achieved. I think it is definitely established and it has been my observation that when a capable surgeon gets an operable case the patient recovers from gastrectomy in a favorable percentage of cases. If the case is early enough I think there is a good chance of curability. Therefore, there is very good reason why we should take the initiative in seeing that the general practitioners get cases early enough. We, who practice internal medicine or gastroenterology, should not avoid the issue and should bring them to the surgeon early in our failure and not procrastinate.

It is comforting to know that the gastroscopists at Mayo make errors as we do. After reading Schindler's book, after hearing him say that with the gastroscope one could make a statement definitely one way or another, I felt we had a relatively infallible procedure. We have disproved that to ourselves already. While it may be a means to early diagnosis this will be only if we see cases sufficiently early. It will not be of use to the surgeon unless it becomes a means to an early diagnosis for it cannot give criteria as to curability and its accuracy as to operability is only fair. I think probably the greatest value it has is to check treatment of gastric ulcer. We are aware that roentgenology is not sufficiently accurate to decide whether the ulcer has or has not healed. If a lesion does not heal gastroscopically under a careful medical regimen, then it becomes a surgical problem.

Hyperacidity in malignancy is another interesting point. Too frequently the presence of acidity indicates benignancy to the physician. Recently, Dr. Browne and I have adopted what might be considered a radical attitude in advocating surgery in all cases of medically incurable (after 6 weeks' therapy) gastroscopically benign ulcers and gastric polyps, whether single or multiple. We recently offered three cases which were of single benign polyps, pathologically benign. By so doing we hope that these patients have been prevented the possibility of subsequently dying of carcinoma of the stomach.

Dr. Gray (In closing): In order to impress upon us again the significance of malignant lesions of the stomach, we may review the figures as quoted. Of each 100 patients whom we have the opportunity of seeing at present, approximately 50 are considered to be inoperable and are sent home. Of the remaining fifty for whom surgical exploration is carried out, the lesions of approximately a half, or 25 per cent, of the original number of patients, will be resectable. To the best of our knowledge, approximately 30 per cent of those for whom resection of the stomach for a malignant lesion has been done will be alive at the end of five years. Consequently, it may be said, roughly, that one quarter of those patients who undergo resection, or one-sixteenth (approximately 6 per cent) of all patients we now see suffering from cancer of the stomach, operable or inoperable, will be alive at the end of five years.

Dr. McHardy's point that the responsibility of considering the possibility of cancer of the stomach must rest on the physician who first sees the patient is unquestioned, and it is our duty to impress on our medical colleagues the importance of this responsibility.

In reference to Dr. Gage's point concerning the etiologic relationship of ulcer of the stomach to gastric cancer, we must recognize that an ulcer of the stomach does present excellent factors for the development of cancer. So, also, does an ulcer of the duodenum, but a malignant lesion of the duodenum is seen so rarely that a difference undoubtedly exists between the behavior of an ulcerating lesion of the stomach and that of an ulcerating lesion of the duodenum, in so far as malignancy is concerned. Unquestionably, the presence of occult blood in the gastric contents, as mentioned by Dr. Levin, is of extreme importance. We must recognize, also, the fact that the disappearance of occult blood from the gastric contents may be associated with a malignant lesion. We have no right to place absolute confidence in this test alone in distinguishing a malignant lesion from a nonmalignant lesion.

GASTROSCOPY IN HEMORRHAGE OF THE STOMACH*

DONOVAN C. BROWNE, M. D.†
AND
GORDON McHARDY, M. D.†
NEW ORLEANS

Assuming the position of safe endoscopy with the introduction of the flexible gastroscope, this diagnostic procedure has become generally accepted in the intervening years. Sufficient time has elapsed to disprove the contention that the earlier writers were unduly enthusiastic; conclusions drawn from critical analyses and research establish the virtues of endoscopically exploring the stomach. Summarizing papers reveal essential unanimity concerning the special technic; a standard method of gastroscopy, with slight modifications, is realized. In eight years no new contraindications have been added. The instrument remains essentially unchanged; modifications permitting biopsy are in the experimental stage. Indications for gastroscopy have not widened greatly. From the accepted indications we have excerpted, "unexplained hematemesis or melena"—"any patient for whom exploratory laparotomy is contemplated." We hope to modify these accepted indications by suggesting the application of gastroscopy in selected instances of acute melena or hematemesis, free of "shock."

Authors mention the use of gastroscopy after the hemorrhage has ceased. There is no definite reference to applying the procedure to instances of active bleeding at which time the diagnosis is so difficult to make and is so important to the management of the case. Schindler states "Gastroscopy has been feasible as soon as the third day after a profuse hemorrhage and probably would be innocuous even if performed during the hemorrhage." We are endorsing the latter portion of this statement. It is well appreciated that in gastric disease symptoms, signs, laboratory procedures and even roentgenologic findings give only presumptive evidence. Considering each of the problems encountered in hemorrhage we will attempt to rationalize our contention with the claim that gastroscopy is a safe and most accurate method of immediately determining the source and character of gastric bleeding.

Impulsively, a tentative diagnosis of bleeding ulcer is made when presented with a case of upper gastrointestinal hemorrhage. All are aware of the statistical 25 per cent incidence of melena or hematemesis in ulcer cases. Such reasoning is erroneous if Gutman's contention, that only 19 per cent of gastric hemorrhages are due to ulcer, is correct. Assuming that an ulcer does exists, judging from history or previous roentgenology, still the indication for gastroscopy remains. A scopically visible ulcer, gastric or marginal, may be studied and an opinion gained as to its relation to blood loss. Chronicity, visible sclerotic vessels in the ulcer crater and penetration are reasons for surgical intervention. An uncomplicated ulcer would be managed medically. A known chronic duodenal ulcer, not available for gastroscopic viewing, may be an innocent associate of bleeding gastric lesion; by establishing this we may prevent erroneous surgery directed at the duodenal lesion.

Gastritis, diagnosable only by direct vision of the gastric mucosa, is probably the source of bleeding in those instances of massive hemorrhage where a diagnosis is not available after roentgen examination and exploratory laparotomy. Shaw has recorded the incidence of such cases to be 39 per cent. The ulcerations and erosions of the chronic hypertrophic, superficial and atrophic gastritidies are pertinent to this discussion. They may occur alone or concomitant to ulcer, malignancy or gastroenterostomy lesion and as such may be the source of bleeding while the other is suspected. Establishing gastritis as the source of hemorrhage eliminates any need for surgical intervention on this score with the exception of pyloric obstruction from the hypertrophic variety. Gastritis is usually regarded as contraindicative to operative measures, for it limits the normal mucosa available for surgically re-establishing the stomach and threatens involvement of the operative site to nullify the benefits expected of surgery.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the Department of Medicine, School of Medicine, Tulane University, and the Gastroenterology Clinic of Touro Infirmary, New Orleans.

Gastric malignancy, encountered upon gastroscoping the acute bleeder, will, in most instances, show an associated gastritis; either may be a source of bleeding. Surgically, in management of malignancy, resection is the issue and such is hardly to be ventured on an acutely bleeding case nor upon a stomach largely involved by gastritis. Gastroscopy would prevent such haphazardous invasion of the abdomen.

Small benign tumors, friable gastric mucosa, gastric purpura, mucosal erosions of hepatic insufficiency and other non-inflammatory sources are encountered as sources of hemorrhage and in each the adaptability of the gastroscope to the diagnosis is apparent. X-ray would be of no aid in differentiating these cases. Surgery, as a disgnostic procedure, would be valueless and probably harmful; certainly, it could have no benefit as an emergency procedure.

It is our experience that often patients with gastroduodenal bleeding when first seen are either not in or have recovered from the phenomenon "shock." In this shock-free stage we are convinced that the risk of gastroscopy is minimal and is comparable to intubation, which is practiced (using a large soft Ewald tube) prior to passing the scope to empty the stomach, lavage it with ice water if necessary and to establish the innocence of the esophagus. We feel that if the Ewald tube is passed without difficulty that the gastroscopic passage through the esophagus is not to be feared. It is our practice to scope the patient rapidly, not consuming more than five minutes for the procedure. Under such study the patient actually experiences less discomfort than when we pass the Woldman collapsible gastric tube, which we often use in the treatment of patients with ulcer hemorrhage, as a means of administering a continuous aluminum hydroxide drip. We are aware of esophageal varices as a source of bleeding; none of the patients we examined had any indications of such pathology.

Since bleeding may result from any of several previously considered possibilities it is readily appreciable that most instances of acute melena or hematemesis are of undetermined etiology. Exploratory laparotomy is ever prominent in consideration when the source of bleeding is not known and when the hemorrhage shows potentialities of persisting or of getting beyond control. In an earlier statistical paper we have revealed a 3.5 per cent medical mortality. Further, if surgery is considered necessary to check the bleeding, then, as established authoritatively by Gordon Taylor, and substantiated by others, it should be done within the first 48 hours. With regard to surgery, because of the mortality figures, only Finister has a 6.8 per cent mortality in the surgical management of hemorrhage, because quite frequently the source of hemorrhage is not amenable to surgery nor diagnosable by laparotomy, we are very reserved in offering our patients the risk. However, the existence of definite operative indications is admitted; in their presence, or if an insistent surgical consultant presses the issue, then, in order to ascertain definite evidence as to the source of bleeding, gastroscopy is our aid as a precedent to surgery to facilitate the diagnosis, determine the need for surgery and establish the operability.

We therefore offer for consideration a possible gastroscopic indication; certain instances of acute melena or hematemesis free of "shock" or other contraindications in whom an immediate diagnosis is essential to the management of the case. Unquestionably, shock accompanying hemorrhage renders hazardous not only gastroscopy but also intubation and any type of surgery. A knowledge of the gastric mucosa, available by endoscopic exploration of the interior of the stomach is often indispensable to the accurate and proper management of hemorrhage when one realizes the etiologic possibilities and that in no simpler way, at this time, can the source of hemorrhage be determined.

In three years we have encountered only twelve patients with acute hemorrhage in whom we judged the procedure applicable. Clinical judgment played a great part in the selection. In ten instances the prospect of surgery stimulated the examination. All were scoped while in the active period of bleeding, six had manifest hematemesis, the remainder had tarry stools and anemia as evidence of their active bleeding. Of the ten for whom laparotomy was considered only four became surgical cases.

SURVEY OF PATIENTS GASTROSCOPED DURING ACUTE STAGE OF HEMORRHAGE

Case No.	History	Age	X-rays	R. B. C.	Hb.	Gastroscopy
R-6847	Gastroenterostomy Melena and hematemesis	66	None	3.5	70	Jejunal ulcer
R-7816	Melena	37	Negative**	2.5	45	Superficial gastritis with erosions
B-30642	Gastroenterostomy Melena and hematemesis	48	Carcinoma*	3.9	70	Marginal ulcer; benign
R-6240	Gastroenterostomy Melena and hematemesis	59	Carcinoma*	2.7	50	Superficial gastritis; carcinoma
R-1276	Melena	58	Negative**	3.3	65	Atrophic gastritis with erosions
R-667	Hematemesis	64	Carcinoma*	3.3	70	Hypertrophic gastritis; benign ulcers
R-8779	Melena	52	Negative**	4.0	65	Superficial gastritis; benign ulcers
R-2829	Melena	42	Negative*	3.7	70	Gastric purpura
R-7628	Melena	54	Carcinoma*	3.0	50	Hypertrophic gastritis; benign ulcers
R-9057	Melena	33	Carcinoma*	4.0	70	Hypertrophic gastritis; benign ulcers
S-2008	Repeated hematemesis and melena	35	Duodenal ulcer**	3.4	65	Negative
B-41570	Hematemesis and melena	63	Carcinoma*	2.5	50	Carcinoma at cardia

Gastroscopic diagnosis was substantiated in each instance.
*X-rays done prior to this admission.
**X-rays done after complete recovery.

DISCUSSION

Anticipating critical reaction to this presentation we sought personal communications from a group of prominent American physicians interested in gastroscopy that we might have an index as to the conservative thought in the United States. We received cooperative responses from Doctors Joseph Bank, Crawford Barnett, Edward Benedict, James L. Borland, Edwin Boros, James Carey, John Fitzgibbons, E. B. Freeman, John Howard, Chevalier Jackson, Gordon McNeer, H. J. Moersch, Marie Ortmayer, C. O. Patterson, Gerald H. Pratt, John Renshaw, Julian Ruffin, Leon Schiff, Rudolph Schindler, Jacob Schloss and William Swalm.

The opinions of these contributors certainly satisfy the purpose of our questionnaire. Since we consider Rudolph Schindler the foremost gastroscopic authority, his reply is reproduced: "I have never gastroscoped during a gross hemorrhage, only two days after, but I have recommended it in a case in which gastroscopy did not permit the recognition of the source of the bleeding. In my opinion gross hemorrhage is a very important indication for the use of the gastroscope. The gastroscope may reveal severe bleeding inflammation of various types, or non-inflammatory hemorrhage erosions. Such a discovery may prevent the surgical removal of a non-bleeding duodenal ulcer. Furthermore, benign tumors as a source of hemorrhage are sometimes discovered only by gastroscopy, especially myomas."

We judge from this response and his other writings that Schindler feels gastroscopy is relatively innocuous in such cases but that because of his position of leadership and the realization that many novices would be led into radical gastroscopy, he has been ultra-conservative.

Those communicators, advising against gastroscopy during acute hemorrhage do not claim to have performed a series of cases under this circumstance. Of the twenty-one, only seven admitted having performed examinations in which there was definite evidence of bleeding, none had encountered any complication. Four others admitted that they would favor gastroscopy as a precedent to emergency surgery. Only six of the group delayed the examination until x-rays were done. Those favoring examination of bleeding patients have satisfied their curiosity by gastroscopy in such emergencies and none report any misfortune. Those who offered objections listed esophageal varices and reactivation of severe bleeding as their reasons for conservatism.

Renshaw reserves gastroscopy for those hemorrhage cases in which after ten days' care an x-ray "reveals a gastric ulcer or fails to reveal the cause of hemorrhage" and states further "I have never seen a recurrence of the bleeding or any untoward reaction. This applies even to hemorrhage cases resulting from esophageal varices." In answer to the inquiry as to the value of gastroscopy in hemorrhage he replies: "I do not believe gastroscopy contributes significant data in the usual hemorrhage case."

With the exception of Howard, Ruffin, Boros and Fitzgibbons, the value of gastroscopy in determining the source of bleeding is enthusiastically admitted. Benedict, like Renshaw, requires a negative roentgenologic study, but admonishes that if gastroscopy is to be of aid it must be done within three days "for the erosions and superficial ulcerations in the mucosa heal with extraordinary rapidity." We suspect that the disappointments of Howard, Ruffin, Renshaw, Boros and Fitzgibbons may be explainable on this basis.

Ruffin and Patterson are the only correspondents who admit performing gastroscopics in the face of hemorrhage.

Barnett, in stating: "I do not gastroscope my cases of acute hemorrhage at the present time" offers a clue that he suspects the likelihood of the eminence of such an indication being acceptable. Barnett also suggests: "we may assume that actual therapy in acute hemorrhage through the use of the flexible gastroscope, may be expected in the near future when his (McNeer's) modifications of the instrument are on the market through Wappler." But surely this will not be established if we do not become sufficiently gastroscopically bold as to venture a "diagnostic-look."

CONCLUSION

It is not unlikely that gastroscopy is indicated in selected instances of acute melena and hematemesis.

DISCUSSION

Dr. A. L. Levin (New Orleans): The question of gastroscopy in hemorrhage is still in the realm of debate. There is no unanimous agreement as yet as to when gastroscopy should be done in a case of hematemesis. Dr. Browne has presented the views of gastroscopists as he gathered them from literature and otherwise. I have gone through the same task and presented my views before the National Gastroenterological Society last June. Here, I would like to make the following remarks: We all hesitate to do a gastroscopic examination during active bleeding. If esophageal bleeding is suspected, the esophagoscope is the instrument of choice. In the majority of hematemesis cases at Charity Hospital, we had the opportunity of doing gastroscopic examinations only after several days following the hemorrhage. In quite a number of those cases we have observed chronic gastritis with erosions. In some there was a definite superficial bleeding ulcer. In several cases there were definite hematomas or distended vessels, varicosities-like and oozing of blood from those vessels. This was a common source of bleeding. In some cases, probably examined too late, when the original source was effaced, no discoverable causative factor was present. I would advise, however, not to hesitate to examine gastroscopically, an active gastric hemorrhage case. A recent case taught me a lesson of great value. I gastroscoped a desperately active bleeding case where twelve transfusions did not check hemorrhage. I discovered a bleeding ulcer and advised immediate surgery and the patient's life was thereby saved.

Dr. Donovan C. Browne (In closing): The questionnaires referred to were used that a cross-section of opinion might be obtained. None were employed locally, since I felt we were sufficiently familiar with the work and attitude of our group. If Dr. Levine will recall, we discussed this problem at length only recently.

A point I feel should be stressed further is that he found suggestive evidence of hemorrhage after three to four days. It must be kept in mind the rapidity with which these gastric lesions heal, and if definite information is to be obtained, gastroscopy must be early.

PRESENT STATUS OF CHEMOTHERAPY IN UROLOGY*

A CLINICAL EVALUATION

HENRY W. E. WALTHER, M. D.
AND
ROBERT M. WILLOUGHBY, M. D.
NEW ORLEANS

In the treatment of urogenital infections, urologists generally have taken a far more conservative position regarding the newer azo derivatives than the physician practicing general medicine. For we have been deluded so often in the past with unwarranted propaganda to the effect that such and such a drug was now available that would sterilize any urine of its bacterial content, that we refuse longer to be part and parcel to such a hoax. It is true that one or two urologists, who should know better, have allowed their pictures to appear in a certain popular weekly magazine along with interviews in which they claimed that seventy cents' worth of sulfanilamide would cure any case of neisserian infection or that a few sulfathiazole tablets would send the last staphylococcus to a sure death. It is indeed regrettable that even among the best of new therapeutic agents introduced into medicine, three phases of evaluation seem inevitable: first, the period of over-enthusiasm; then, the reaction which elicits bitter condemnation and, finally, that serene state where matters hit an even keel of rationality. The fact that no less than between twenty and thirty different brands of these azo derivatives are now bartered daily across every drug store counter attests to the confusion into which the whole matter has drifted. We understand that federal and state laws will soon make it a misdemeanor for any pharmacist to dispense these drugs without a physician's prescription. Obviously such regulation should have been in force long ago. Many deaths would certainly have been prevented by such legislation, promulgated five years ago when these substances first flooded the market. That these agents are lethal in the excessive doses is daily attested to in some general hospital where adequate supervision, in its administration, is actually not provided. Apart from pneumonias and septicemias, where a life is at stake, it is unpardonable, in our opinion, to prescribe daily four to eight grams of these mystery-chemicals over indefinite periods.

Urologic chemotherapy should be carried out in a hospital where, under constant medical supervision, the patient has the advantage of every safeguard. Unfortunately, this is impractical. The next best plan is not to overdose the patient with a poison of whose potentialities we know so little. All have observed that those individuals confined to bed tolerate larger doses of these azo derivatives than ambulatory cases. Nicotinic acid is being widely used in some quarters, combined with these newer drugs, in minimizing the porphyrinuria. Unfortunately, the nicotinic acid does not always work. The combining of alkalis with these azo derivatives has its advocates and, in our experience, supplies a most valued buffer and should be more widely accepted. Bicarbonate of soda, given grain for grain in equal proportions to the substance selected, is routine with us. To our knowledge, no satisfactory explanation has been given regarding the favorable effect noted in giving alkalis here but the fact remains that the gastrointestinal upsets, which constitute no small amount of reactions experienced, are definitely minimized if not eliminated. Blood determinations for therapeutic level can be tried whenever practical; unfortunately, the majority of patients on these newer azo derivatives cannot receive this laboratory luxury. Anyway, the optimum blood concentration yet remains to be determined.

Our interest in chemotherapy as applied to urologic infections dates back to 1928 when we first reported our experiences with the azo dye, pyridium, in a series of 200 cases of non-complicated bacteriuria. Our observations then led to the conclusion that the introduction of dye preparations heralded a new epoch in urinary antisepsis, for here we had a substance which, for the first time, was grossly detectable not alone in the voided urine but also in the secretion from the prostate and seminal vesicles. Such an epoch-making observation makes little appeal to clinicians today but twelve years ago it created quite a stir among serious workers in the field. We stated at the time that, in our opinion, much clinical research and experimentation still remained to be done before dyes with specific bacterial affinities could prove beyond peradventure of doubt their superiority. We urged, however, that clinicians familiarize themselves with these newer agents and apply them rigorously in order that a sane therapy might be formulated.

---

*Read before the Orleans Parish Medical Society, June 10, 1940.

In 1934, six years after our first communication, we reported our tabulation of 1500 complete case records in which pyridium had been used in the treatment of urogenital infections. This review included 654 cases of pyelonephritis, with 61.8 per cent either cured or definitely improved as shown by culture; 480 cases of urethritis, with 42.1 per cent negative to smears and cultures; 360 cases of prostatitis, with 81.6 per cent improved or negative to culture; and 15 cases of cystitis, with 33 per cent negative to culture. The interesting summary of 282 replies received in answer to a questionnaire on azo dyes, sent out to members of the American Urological Association, can only be here summarized in the briefest manner: 160 urologists had obtained favorable results with pyridium, while 128 had not, but it was most interesting to observe that in those replies unfavorable to the dye, invariably they had not used in it more than a few instances and then for a very short period. We closed this report by stating that notwithstanding the great practical value of combined clinical and laboratory research, we believed that there would remain much in the empirical inheritance of azo dyes and their derivatives which could not be fully explained by present day investigations; that their actions and reactions within test tubes and the utilization of their properties in therapy would not always parallel. On this point our opinion today remains unchanged despite the roseate claims from certain quarters relative to the latest azo derivatives now being tried.

In 1937, in an historical review and evaluation of urinary antisepsis, we warned the profession against large initial doses of sulfanilamide in the treatment of urogenital infections, pointing out that headaches, fever, lassitude, cyanosis, general malaise and extreme prostration following intoxication by these substances might do patients more harm than good. We are sorry to say this prognostication has been verified.

SULFANILAMIDE IN GONORRHEA

In 1937, we began treating gonorrhea with prontylin. This was the pioneer substance available for such therapy. Another kindred preparation, prontosil, and then neo-prontosil, were developed from the original formula, and all of these agents were later called sulfanilamide.

Looking back over those hectic days, one is struck with the enormity of the literature that appeared in medical publications during the years 1937 and 1938, lauding the merits of these new substances. For a time it appeared as though we now had a specific for neisserian infections and their complications, and many reported 90 per cent cures in two weeks, by the use of this new agent.

The dosage of sulfanilamide advocated at the time in England was more conservative than that used in this country, and we followed the English school, feeling that we had to advance cautiously with this drug of unknown toxicity. From the beginning our plan adopted was to give from 10 to 15 grains of sulfanilamide four times daily for about a week, and if no results were forthcoming in that time, the drug was usually discontinued. Never did we abandon local treatment in conjunction with the oral medication, as we felt that the rationale of using hand injections or irrigations of mild antiseptic solutions were on too well established a foundation to abandon them. Most urologists followed this procedure, and still do so.

Not alone did we follow the English school in the employment of conservative dosage, but we further supplemented the oral administration of this new chemical by subcutaneous injections, every other day, of gonococcus antigens or lysates, in order to increase the antibodies. We have rarely varied from this plan in the four years we have been using these agents, and we feel sure that the action of the sulfanilamide is markedly enhanced by the additional support of the antigen therapy.

Among other observations we noted that a certain percentage of patients did not tolerate the drug well, even in small doses, for on the second day some complained of nausea, loss of appetite and headaches. In these office patients, by the third or fourth day, many would be so upset that they would refuse to take the drug. Later we found that by using equal parts of bicarbonate of soda with the sufanilamide, the gastrointestinal symptoms were minimized. Most of us will agree that the drug in use today certainly appears much less toxic than that available four years ago. Yet the clinical results are about the same. We are led to believe that no matter what the dosage, failures will be experienced by its use.

There is no question that the patient confined to bed can take larger doses of sulfanilamide and tolerate them much better than the office patients. As few of these patients will consent to go to bed, but must be about their daily work, the problem of drug administration has many complexities.

Pelouze, in analyzing data collected by the American Neisserian Society, states that figures culled from many sources appear to show that in the management of gonorrhea, sulfanilamide is reported to have brought about prompt cures in from 25 to 40 per cent of dispensary patients, from 45 to 55 per cent of office patients, and, perhaps, from 75 to 85 per cent of bed patients. He states further that there are actual data to show that many patients, whose symptoms disappear, still harbor the gonococcus and transmit infection.

The American Neisserian Society finds that the common scheme of dosage for treating gonorrhea in ambulatory patients averages 80 grains a day for two days, 60 grains a day for the next three days, and a later continued daily dosage of 40 grains. Many clinicians, he states, consider this too high, and use 60 grains a day for four days, and a maintenance dose of 40 grains a day thereafter. In bed patients, on whom the most dependable figures have been obtained, the initial dose was 120 grains a day for several days, and then a gradual reduction in dosage.

The doses should be so spaced as to prevent low blood concentration during the night. Some give larger doses at bed time to ambulatory patients. Many administer sodium bicarbonate in half quantity with each dose.

RELAPSES UNDER SULFANILAMIDE THERAPY

The problem of relapses in the infective process following the withdrawal of sulfanilamide has given many clinicians anxious moments in the management of cases supposedly cured. That bacteria do disappear in the urine and in the secretion from the prostate and seminal vesicles following sulfanilamide therapy and that even cultural studies repeatedly carried out give negative findings and yet later to observe a relapse is experienced by all. Such relapses, in our observations, occurred much more frequently when massive doses of the drug were given over short periods of time than when smaller doses were administered over a prolonged period. Particularly in the treatment of gonorrhea has this type of relapse been most disconcerting because we found that relapse cases often proved sulfanilamide-fast and would fail to respond to the drug upon re-application no matter in what volume the drug was given or over what length of time. Ballenger and co-workers have recently emphasized the importance of recognizing protected foci or dead spaces as a chief cause of failure in many urogenital cases; here a longer time, a higher degree of immunity or a greater concentration of the therapeutic agents is required for the eradication of infection from such foci than for the eradication of infection not so protected. Antigens or lysates administered hypodermically in conjunction with the oral administration of these newer chemotherapeutic agents works better than when the injections are omitted. These antigens or lysates greatly increase the antibodies in the blood and in this way make sulfanilamide more effective.

TOXIC MANIFESTATIONS OF SULFANILAMIDE

Lockwood, Coburn, and Stockinger have grouped the untoward effects so well that we give here a resumé of their findings:

(a) *Cyanosis* has been the most common factor observed by observers as a deleterious by-effect in the administration of the sufanilamides. Approximately 50 per cent of adults and 20 per cent of children become cyanosed under the regimen of taking these drugs, according to the literature. It develops occasionally within twelve hours; most persons become blue before the third day. It parallels closely the concentration of methemoglobin in the blood as illustrated by spectrophotometer. Cyanosis disappears rapidly following withdrawal of drug but the question arises whether the development of methemoglobinemia may not aggravate the underlying disease. In the four years we have been using these substances we have noted practically no cyanosis in our cases as we have never found it necessary or prudent in ambulatory urologic cases to give the large doses advocated by others.

(b) *Gastrointestinal symptoms* are observed frequently, particularly anorexia, nausea, vomiting and abdominal pain. Diarrhea can be severe at times. In infants such toxic effects present a real problem where it is so essential to maintain a nutritional balance. They disappear when the drug is withdrawn.

(c) *Disturbances of the nervous system* in the form of dizziness and headaches are observed frequently; lightheadedness and depression are also observed. Some few patients become utterly disoriented and even maniacal. All these signs disappear the moment the drug is stopped. However, in certain instances, where patients have been overdosed by these substances a peripheral neuritis has intervened. In our extensive experience with the azo derivatives we have never encountered this complication because of the conservative doses we have always employed.

(d) *Sulfanilamide fever* is noted following administration of drug in certain hypersensitive patients and usually means that such patients will not tolerate this form of therapy well. The fever comes on within twenty-four hours but may be delayed for several days, after beginning the drug, and may go as high as 106° F. Fever reaction patients seem to have a low tolerance for sulfanilamide. The temperature becomes normal when the drug is stopped.

(e) *Precordial and abdominal pain;* unexplained abdominal pains during course of treatment are chiefly located in upper quadrants of abdomen and occur in patients showing the other toxic evidences, namely, cyanosis and gastrointestinal upset.

(f) *Acidosis* is quite rare among complications but has been noted.

(g) *Rash* in parts or over entire body, with intense itching, can be a most trying toxic manifestation but unlike the arsenical rash usually disappears within a few days following cessation of drug. At one time it was thought that over-exposure to sun rays, while taking the drug, was the sole cause of these rashes, but we have noted them in individuals who never went out in the sun.

(h) *Jaundice* is of two types, one a severe hemolytic jaundice and the other the result of a hepatitis, an extremely disturbing development in view of possible permanent damage to the liver; usually accompanied by secondary anemia; blood transfusions help here.

(i) *Anemia;* severe hemolytic anemias have been attributed to sulfanilamide, and may occur after moderate doses of the drug, at times accompanied by icterus. Enlargement of spleen and liver have been observed. Transfusions seem to counteract progress somewhat.

(j) *Hemoglobinuria* usually develops early in hypersusceptive individuals with alarming drop in hemoglobin level within a few days.

(k) *Granulocytopenia;* depression of leukocytes following sulfanilamide may be partly due to drug and partly due to the infection present; in some the granulocytes disappear completely with alarming pyrexia but with final outcome satisfactory.

In a few instances the toxemia will not evidence itself during the course of therapy but will come on two or three weeks following discontinuance of the drug. Pyrexia to 105° F., jaundice, enlargement of spleen and liver, and a rash, may be among such delayed symptoms. Such reactions may well come on after the patient has been discharged by his physician. Usually whenever severe toxic reactions occur, such patients are not benefited by sulfanilamide and the sooner it is discontinued the better.

INHIBITORY ACTION OF SULFANILAMIDE ON SPERMATOGENESIS

Jaubert and Motz, of Paris, carefully studied the spermatic fluid in twenty-three men with gonorrhea treated with sulfanilamide and found that, as a result of such therapy, 39.4 per cent remained with normal sperm, in 30.4 per cent sperm was moderately decreased and in 30.4 per cent it was very much diminished. The number of the spermatozoa as well as their shape was noticeably changed, this toxic action appears as soon as sulfanilamide is begun and appears to continue. In contrast they quote a series of gonorrhea cases in which sulfanilamide was not used and found normal sperm in 89.5 per cent of cases, moderately decreased in 7.8 per cent, very markedly decreased in 0.4 per cent and azoospermia in 8.2 per cent. Cases complicated by epididymitis, prostatitis and vesiculitis were excluded from the series under study. Unfortunately, these observers do not mention the quantity of sulfanilamide they prescribe. Our personal observations on this phase of the toxicity of this substance have not been sufficiently extensive to comment.

In the limited time at our disposal, it is not possible to evaluate clinically many chemotherapeutic agents that still hold the attention of the serious worker in this field; such substances are hexylresorcinol, betahydroxybutyric acid and mandelic acid still remain subject to more deserving experimentation than has been accorded them thus far. All three have merit. But the azo derivatives, coming at about the same time, with such dramatic appeal, have completely obscured these other deserving agents for combating urinary infection.

At present the urologist is being asked to appraise therapeutically a group of these chemicals, the better known of them being; (a) sulfanilamide, (b) uleron, (c) disulon, (d) sulfapyridine, (e) sulfacetimide, (f) benamide, and (g) sulfathiazole.

That these recently introduced azo derivatives represent a decided step forward in the treatment of urogenital infections no one will question. And these seven mentioned agents are but the vanguard of a host of other similar substances yet to come.

Uleron or D-373 has been recommended for its specific action not only against gonococci, hemolytic streptococci and meningococci, but also against staphylococci. The foreign literature on uleron or D-373 is so formidable that an adequate review of findings is impossible here. In 1938 alone more than 160 articles reported results in the use of this preparation in gonorrhea. It appears indicated in urethritis, seminal vesiculitis, epididymitis, prostatitis, vulvovaginitis, endocervicitis, salpingitis and gonorrheal arthritis; also in staphylococcus infections generally in urogenital tract. Although still experimental, uleron has been used in our office practice in over a hundred cases of neisserian infection with approximately 70 per cent satisfactory results. Dose: 3 grams (45 grains) daily for four consecutive days. After this course of treatment there should be an interval of seven days, during which no drug is given. No more than three courses of treatment with uleron should be given. We noted no peripheral neuritis in our series under uleron and the other usual toxic symptoms, if present, were far less marked than those experienced with similar doses of sulfanilamide.

Sodium disulon or sulfanil-sulfanilamide: This compound azo derivative is credited with a therapeutic index at least five times as favorable as that of sulfanilamide. Like most of these substances we observed that the blood concentration with sodium disulon does not vary with fluid intake; that is, forced or restricted fluid intake has no effect on the blood concentration nor on the total excretion of sodium disulon.

This chemical has enjoyed the enviable position of acting favorably in many cases of gonorrhea that appeared to be sulfanilamide-resistant. Repeatedly, this observation has been made in our own practice. We might state further that in the treatment of gonorrheal cases, if there is no response to the drug in four days, one may conclude that no response will be obtained with this therapy, and it might just as well be discontinued. If sodium disulon is going to affect the gonococcus at all, it will be found to act promptly, even where a conservative dosage is employed.

Peripheral neuritis, a complication observed by some, has never been noted in our practice, and we attribute this solely to the fact that we have avoided excessive dosage of these substances. Sodium disulon has been recommended in infections due to the gonococcus, staphylococcus, certain sporulating anaerobes, psuedomonas, and *Streptococcus hemolyticus.*

Since the beginning of our clinical study with sodium disulon, we have employed it in approximately 200 cases of gonorrhea and over 400 cases of kidney and bladder infection. Sodium disulon is not a specific in all types of urogenital infection. In approximately 33 per cent of instances we found that it so upset our patients that they refused to take it. In those who can tolerate sodium disulon, fully half of the patients are markedly improved by its use, while in the remaining half we obtained apparent cures, both to stained smears and culture studies. Sodium disulon appears far less toxic than sulfanilamide. It is far more effective in infections of the coccal group and is less reliable in treating those of the colon bacillus group.

Sulfapyridine: This drug is really a sulfanilamide pyridine. Its administration demands constant supervision because, on the basis of blood concentration values it appears to be more toxic than sulfanilamide. In urogenital inflammations it has been recommended for use in treating the gonococcus, *Streptococcus hemolyticus* and *B. coli* infections. Numerous instances of stone formation in the kidneys have been reported following its administration over a protracted period and this complication must ever be borne in mind. Where hematuria is observed following its use, the urinary tract should be x-rayed in order to rule out sulfapyridine calculi. Some deaths have been reported from anuria following sulfapyridine therapy; whether all of these fatalities were due to unrecognized, bilateral renal stone formation cannot be determined.

Sulfacetimide or 338-A is an acetyl compound derived from sulfanilamide which is claimed to be markedly effective therapeutically with minimum toxic action while retaining maximum effectiveness. It is particularly advocated in gonorrhea and *B. coli* infections. Sulfacetimide is also a newcomer and our experimental studies to date do not warrant forming an opinion regarding its efficacy, but of its low toxicity we can attest.

Benamide or S-22 is another compound and analog of sulfanilamide which, because it is an acyl derivative of the parent drug, appears to possess low toxicity and appears particularly effective in combating streptococcus infection in the urine. This is one of the newer experimental products given us for testing and we have not sufficient data as yet to decide fully its merits but it is less toxic than sulfanilamide.

Sulfathiazole or S. A. T.-3925 is a sulfanilamide thiazole derivative. Like sulfanilamide it is claimed to be effective against streptococci, and like sulfapyridine has a pronounced anti-pneumococci action, but, unlike either of these preparations, it further exerts a definite effect upon staphylococci. So far, in using it experimentally, in a limited number of cases of resistant staphylococcus infections of the bladder following transurethral prostatic resection, it has completely cleared up foul bladders, within a week or less time, that resisted local treatment combined with the oral administration of other members of the azo derivative group. It is far less toxic than sulfanilamide when given in corresponding dosage.

SUMMARY

Much more experimental work must be done clinically before we can definitely evaluate the various sulfanilamide derivatives in order to give each its allotted place in urologic practice. Whereas we cannot align ourselves all the way with many ultra-enthusiasts in chemotherapy who claim 100 per cent clinical results, nevertheless we are of the opinion that Domagk's discovery of the clinical bacteriostatic effects of the parent substance, prontylin, ranks second only to Ehrlich's discovery of the value of salvarsan in spirochetal infestations. As we view present difficulties and failure with these drugs, it would seem that too large a dosage is being used by many, causing failures or toxic reactions, where smaller doses, in continuation with antigens, and the necessary local treatment, might bring results. Maintaining an adequate fluid intake is most essential, especially where sulfapyridine is being administered so as to avoid colloid calculus formation. Repeated cystoscopies on every patient using these drugs seem imperative. Finally, it must be acknowledged that no single agent in the series can be used for all types of urogenital, bacterial infections and that local treatment so well established must always supplement oral and serologic therapy.

CHEMOTHERAPY IN PNEUMONIA*

C. P. HERRINGTON, M. D.
ALEXANDRIA

In chemotherapy in pneumonia, at last, we physicians have treatment within reach of most of our patients which will tend to give us a standard of treatment.

In chemotherapy we have had, first, sulfanilamide which was beginning to find a favorable place in our armamentarium when a derivative, sulfapyridine, was discovered. The latter has proved more dramatic in action. It is about sulfapyridine that this paper will be chiefly concerned. There are two other derivatives of sulfanilamide (sulfathiazole and sulfamethylthiazole) which are under study and experimentation that might prove even better, but as yet they have not been Council accepted.

REVIEW OF LITERATURE

From reviewing the recent literature we find that after Domagk's discovery of the remarkable bactericidal properties of sulfamidochrysoidine had become rather widely known and others had shown that sulfanilamide was capable of producing comparable results in many and varied infections of the human body, there was an intense activity among chemists to synthesize and investigate compounds related to these two. In the year 1937, papers dealing with these compounds appeared widely in the medical literature of the world and out of this research came benzyl sulfanilamide, the various derivatives of disulfanilamide and sulfapyridine.

Whitby[1] first described sulfapyridine in a paper which appeared in the Lancet, May, 1938. He had previously been actively investigating many other related compounds but this one showed considerable protection in mice against pneumococci of types I, VII, and VIII. Some protection was also evident for types II, III, and V. The preliminary determinations of toxicity for mice gave rather low values and the author at first thought that the drug acted on the capsule of the organism. Later in the same year Whitby[2] gave more complete information about this new drug, stating that it was highly active against certain types of pneumococci as well as beta streptococci and the meningococci. Sulfapyridine had already been tried in human cases, by that time, though these are not described in detail. Even in this early report vomiting was mentioned as a troublesome side action of the drug and experiments had already been attempted at parenteral administration by making a suspension of sulfapyridine in olive oil.

The first report of a fairly large series of cases treated with sulfapyridine was that of Evans and Gaisford[3] who used the drug in 100 patients with lobar pneumonia. Simultaneously 100 patients were treated by ordinary methods to serve as controls. The mortality in the treated series was 8 per cent, whereas that in the controls was 27 per cent. The dosage used was 2 grams of the drug orally on admission, followed by 1 gram every four hours for the first 72 hours, the total dose usually amounting to 25 grams.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

Following these early papers interest in the new drug, which was then supplied under the name M & B 693, rapidly spread to other countries. In the United States, Long and Bliss conducted pioneer studies of a carefully controlled nature. By May, 1939, sufficient data had accumulated so that the Council of Pharmacy and Chemistry of the American Medical Association felt justified in publishing a report[4] approving the drug for experimental use. This report showed that sulfapyridine had been used in approximately 1800 cases of pneumonia in adults and in 650 cases in children. The action of the drug was stated to be unknown at the time of the report and considerable caution in its use was urged. However, the statement was made, "At the present time there is every indication that the drug is a useful remedy." The report set up standards for purity and identification of the drug, something which had been notably lacking up to that time.

In early determinations of toxicity of sulfapyridine reports were made that it was less toxic than sulfanilamide, but later experiments, using the soluble sodium salt, proved it to be more toxic when it was completely absorbed.

PHARMACOLOGIC ACTION

The low solubility of sulfapyridine also determines one of the complications it sometimes causes: the formation of renal calculi. The kidneys are able to concentrate the glomeruli filtrate containing the drug and its acetyl derivative to such a point that crystals which may readily form concretions are precipitated. Sulfanilamide has not been known to be responsible for the phenomenon, probably because of its greater solubility. Whitby[2] has shown that despite the relative insolubility of sulfapyridine the drug seemed to be readily absorbed in therapeutic doses. This observation has been confirmed by almost all observers since that time. Absorption of the drug seems to be facilitated by administering it in finely divided form, crushed, and mixed with food or milk.

After sulfapyridine enters the blood stream its distribution in the body is very similar to that of sulfanilamide; it is found in all the tissues roughly in proportion to their water content. Sulfapyridine appears very rapidly in the blood after oral administration and attains its maximum concentration during the second hour following the single dose.[5] This drug diffuses readily into the cerebrospinal fluid where it may reach a concentration almost equal to that in the blood. Sulfapyridine is partially converted to the acetyl derivative in the human body and there is a marked individual variation with respect to this change. The acetylation of sulfapyridine may be correlated with the metabolic rate, acetylation being more active with elevated metabolism. Sulfapyridine is freely excreted in the urine, but the percentage which may be recovered from the urine varies considerably among different individuals and bears a direct relation to the excellence of kidney function.

Sulfapyridine, like sulfanilamide, gives rise to certain degradation products which have a catalytic effect on the reaction tending to produce methemoglobin in the body. Cyanosis is frequently observed when full doses of the drug are given. The nature of these catalysts is still a matter of dispute.

METHOD OF ADMINISTRATION OF SULFAPYRIDINE

The principles of dosage of sulfapyridine are still not definitely established, but due to the rapid and rather complete absorption of the drug the oral route should be chosen unless vomiting or delirium make it impossible. Since the blood level reaches its peak approximately two hours after any given dose, the most advantageous spacing for doses is three to four hours apart, in finely divided form, mixed with food or drink, but not in capsules. The irregularity of absorption and the variability of acetylation make determinations of the blood level of sulfapyridine almost imperative if accurate control of dosage is sought. Fortunately, the widely used method of Marshall may be applied without modification to the determination of sulfapyridine in the blood. Empiric observations have indicated that the blood level should lie somewhere between 4 and 15 mg. per 100 c. c. in order to obtain good results. As with sulfanilamide, the rapid excretion of sulfapyridine from the body may be accomplished, if this is desired, by a great increase in the fluid intake and the promotion of diuresis. A necessity for this measure may arise in cases where severe reactions occur or where acetylated sulfapyridine crystals create mechanical difficulties in the kidneys. If difficulty is experienced in attaining the desired blood concentration by oral administration of the drug, the recent introduction of the sodium salt in a form suitable for intravenous administration solves the problem. Generally, only one or two injections are needed to produce a satisfactory level and this may often be maintained subsequently by proper oral dosage.

Bacteriologic experiments tend to prove that sulfapyridine does not, in itself, kill the organism but exerts a bacteriostatic effect which aids the normal defenses of the body in overcoming the infection, and that certain strains of pneumococci may become resistant to sulfapyridine if they have been exposed to the drug in sublethal concentration. Because pneumococci may become resistant to the action of sulfapyridine which does not inhibit the formation of specific antibodies it is advisable to attain the maximum blood concentration as quickly as possible.

In clinical pneumonia, many papers which have appeared describing the clinical results in pneumococcic pneumonia and in general, the dosage has followed more or less stereotyped procedures which consisted of an initial rather massive dose, followed by maintenance doses every three or four hours. When the treatment was successful, the first evidence of improvement (and this has been noted with great regularity by all observers) was a rapid and sudden drop in temperature, usually within the first 24 hours. Following this usually the patients began to improve immediately and quickly recovered.

After obtaining permission from the staff, I have compiled statistics of the pneumonia cases treated with sulfapyridine at the Baptist Hospital, Alexandria, Louisiana, during the past year. There were 90 cases of pneumonia, both lobar and bronchial. Of this number there were 48 children under 12 years of age with three deaths, a mortality of 6.25 per cent and 42 adults, (over

CLINICAL RESULTS FROM SULFANILAMIDE IN PNEUMONIA

Author	No. of cases	No. of controls	Average daily dose	Mortality per cent	Control mortality per cent
Flippin and Pepper	2	0	6 gm.	0	. .
Dyke and Reid	8	0	6 gm.	0	. .
Anderson and Dowdeswell	50	50	6 gm.	2	16
Agranat, Dreosti and Ordman	71	86	6 gm.	8.5	18.5
	27	27	6 gm.	7.4	22.2
Lawrence	2	0	6 gm.	0	. .
Williams and Morgan	50	0	.	2	. .
Meakins and Hanson	30	0	6 gm.	3.3	. .
Alsted	6	0	Total of 12 to 33 gm.	33	. .
Graham, Warner, Dauphinee and Dickson	50	?	Initial dose 12 gm. Then 6 gm.	6	23
Hanssen	6	0	.	17	. .
Plummer and Ensworth	88	?	6 gm.	8	25-35
Smith and Nemir	93		0.7 gm. followed by 3.5 gm.	6	. .
Plummer and Ensworth	270		6 gm.	12.6	35-40
Flippin	100	0	6 gm.	5	. .
Wilson, Spreen, et al.	35	35	10 gm. (Later 15 gm.)	0	0
Long and Wood	139	0	6 gm.	7.2	. .
Volini, Levitt and Campione	60	0	6 gm.	3.3	. .
Pepper, Flippin, Schwartz and Lockwood	400	0	6 gm.	7	. .
Totals—18 papers	1487	468		Av. 6.7	Av. 21

12 years of age), with three deaths, a mortality of 7.1 per cent. Average mortality of the 90 cases, 6.66 per cent. The average amount of drug taken by the adult cases was 13.6 grams.

THE FATAL CASES

	Age	Cause of Death	Amount of Drug
1.	86	Bronchopneumonia	38.5 gm.
2.	45	Lobar pneumonia (moribund on admission)	1 gm.
3.	65	Labor pneumonia (neoprontosil, sulfapyridine)	11 gm. 7 gm.
4.	6 mo.	Bronchopneumonia	3.5 gm.
5.	7 mo.	Bronchopneumonia—otitis media (neoprontosil, sulfapyridine)	 1 gm. 0.2 gm.
6.	16 mo.	Bronchopneumonia with pertussis	1.5 gm.

There was the usual nausea and vomiting in almost all of the cases and occasionally cyanosis which was relieved by oxygen. Acetylated crystals were noted chiefly in the aged and debilitated cases. Leukopenias were noted occasionally but recovered quickly on stopping the drug. There were no cases of hepatitis, acute hemolytic anemias or agranulocytosis following sulfapyridine therapy.

CONTRAINDICATIONS TO SULFAPYRIDINE

The contraindications to sulfapyridine therapy in pneumonia are rather vague, and are based on suspicion and hearsay. Sulfapyridine should be avoided when patients give a definite history of an idiosyncrasy to sulfanilamide. It should be avoided or used very cautiously in patients who have hepatic damage. In patients who have marked anemia the drug should be withheld until a blood transfusion can be given. It may be administered with caution when there is a low white cell count unless a sudden drop from the original count is noted after the first one or two doses are given.

The drug is to be discontinued when signs of severe hepatitis, acute hemolytic anemia, agranulocytosis, or hematuria with or without signs of renal failure, develop.

Sulfapyridine has not been found to be incompatible with any of the usual drugs employed in the treatment of pneumonia and one should not withhold any drug when the necessity arises. This does not apply to saline laxatives or cathartics which are always to be avoided.

SUMMARY

It must be admitted that sulfapyridine is not an ideal chemotherapeutic agent but it is hoped and anticipated that it will be superseded by a more satisfactory agent.

It may be said that the results obtained with sulfapyridine in pneumonia have more than justified the initial hopes which were raised. There is a remarkable unanimity of opinion to the effect that the mortality rate for this disease has been lowered to approximately one-third of its former level through the use of this drug.

Already an enormous saving of human life has occurred as a result of the widespread use of this newcomer in the sulfanilamide series and it is not too much to expect that succeeding years will bring forth other compounds, each with its special field of usefulness, so that many of the most terrible bacterial infections known today will be rendered comparatively benign.

REFERENCES

1. Whitby, L. E. H.: Chemotherapy of pneumococcal and other infections with 2-(p-aminobenzenesulphonamido) sulfapyridine, Lancet, 1:1210, 1938.

2. Whitby, L.: Chemotherapy of bacterial infections, Lancet, 2:1095, 1938.

3. Evans, G. M., and Gaisford, W. F.: Treatment of pneumonia with 2-(p-aminobenzenesulphonamido) sulfapyridine, Lancet, 2:14, 1938.

4. Council of Pharmacy and Chemistry: Sulfapyridine, J. A. M. A., 112: 1830, 1939.

5. Durel, P., Halpern, B. N., Dubost, P. and Allinne, M.: Passage dans le sang, dans le liquide cephalo-rachidien et dans les urines de l'a (p-amino-phenyl-sulfamido) sulfapyridine (693), Presse Med., 47:920, 1939.

6. Flippin, H. F. and Pepper, D. S.: The use of 2-(p-aminobenzenesulfonamido) sulfapyridine in the treatment of pneumonia, Am. J. Med. Sci., 196:509, 1938.

ADDITIONAL BIBLIOGRAPHY

Dykes, S. C., and Reid, G. C. K.: Treatment of lobar pneumonia with M. & B. 693, Lancet, 2:1157, 1938.

Anderson, T. F., and Dowdeswell, R. M.: Treatment of pneumonia with M. & B. 693, Lancet, 1:252, 1939.

Agranat, A. L., Dreosti, A. O. and Ordman, D.: Treatment of pneumonia with 2-(p-aminobenzenesulphonamido) sulfapyridine (M. & B. 693), Lancet, 1:309, 1939.

Lawrence, E. A.: Type III pneumococcus pneumonia, the effect of para-amino-benzenesulphonamido sulfapyridine in treatment, New York State J. M., 39:22, 1939.

Williams, R. H., and Morgan, H. J.: The treatment with sulfapyridine of fifty patients with pneumococcic lobar pneumonia, South. M. J., 32:601, 1939.

Meakins, J. C., and Hanson, F. R.: The treatment of pneumococcic pneumonia with sulfapyridine, Canad. M. A. J., 40:333, 1939.

Alsted, G.: Type III pneumococcal pneumonia, effect of M. & B. 693, Lancet, 1:869, 1939.

Graham, D., Warner, W. P., Dauphinee, J. A. and Dickson, D. C.: The treatment of pneumococcal pneumonia with dagenan (M. & B. 693), Canad. M. A. J., 40:325, 1939.

Hanssen, P.: Treatment of lobar pneumonia with M. & B. 693, Lancet, 1:61, 1939.

Plummer, N., and Ensworth, H.: Preliminary report of the use of sulfapyridine in the treatment of pneumonia, Bull. New York Acad. Med., 15:241, 1939.

Smith, C. H., and Nemir, R. L.: The sulfapyridine treatment of pneumonia in children, J. A. M. A., 113:1867, 1939.

Plummer, N., and Ensworth, H. K.: Sulfapyridine in the treatment of pneumonia, J. A. M. A., 113:1847, 1939.

Flippin, H. F.: Preliminary report of the use of sulfapyridine in the treatment of pneumonia, Bull. New York Acad. Med., 15:249, 1939.

Wilson, A. T., Spreen, A. H., Cooper, M. L., Stevenson, F. E., Cullen, G. E., and Mitchell, A. G.: Sulfapyridine in the treatment of pneumonia in infancy and childhood, J. A. M. A., 112:1435, 1939.

Long, P. H., and Wood, W. B.: Observations upon the experimental and clinical use of sulfapyridine, Ann. Int. Med., 13:487, 1939.

Volini, I. F., Levitt, R. O., and Campione, N. L.: Serum and drug therapy in pneumococcus pneumonia, Illinois M. J., 76:420, 1939.

Pepper, D. S., Flippin, H. F., Schwartz, L., and Lockwood, J. S.: The results of sulfapyridine therapy in 400 cases of typed pneumococcic pneumonia, Am. J. Med. Sci., 198:22, 1939.

Reddick, W. G.: Sulfapyridine in the treatment of pneumococcal pneumonia, South. M. J., 413:418, 1940.

Hinshaw, H. C.: Chemotherapy in pneumonia, Proc. Staff Meet., Mayo Clinic, 14:772, 1939.

Long, P. H.: Chemotherapy in pneumonia, Proc. Staff Meet., Mayo Clinic, 15:175, 1940.

Moorman, Lewis J.: Pneumonia, medical treatment, South. M. J., 32:1216, 1939.

Yeiser, Watt.: Treatment of pneumonia, South. M. J., 32:1220, 1939.

Friedenwald, Edgar B., and Bereston, Eugene S.: The treatment of pneumonia in infancy and childhood with sulfapyridine, South. M. J., 32:1223, 1939.

Long, Perrin H.: Thiazole derivatives of sulfanilamide, J. A. M. A., 870:871, 1940.

Fleming, A.: The antibacterial action in vitro of 2-(p-aminobenzenesulphonamido) sulfapyridine on pneumococci and streptococci, Lancet, 2:74, 1938.

Ross, R. W.: Acquired tolerance of pneumococcus to M. & B. 693, Lancet, 1:1207, 1939.

Schmidt, L. H., and Hilles, C.: Sulfapyridine: Immunity to reinfection with type 1 pneumococcus, Proc. Soc. Exper. Biol., & Med., 41:111, 1939.

DISCUSSION

Dr. F. A. Thomas (Urania): Dr. Herrington has presented a comprehensive paper on chemotherapy in pneumonia, and I think very little can be added to it. He has made an exhaustive study which should mean something to all of us.

I would like to mention one or two of the newer drugs not as yet Council accepted, namely, sulfathiazole. However, at present, there has been much experimental work done with it, and Dr. Long's report in the March issue of the Journal of the American Medical Association is very favorable, with the exception of its producing results very similar to those of sulfapyridine and the indications and contraindications are the same.

In regard to sulfapyridine, I wish to stress the importance of oral administration in sufficient doses to kill the organism and not allow drug fastness to develop. It has been proved that when drug fastness develops this particular pneumococcus will hold through 15 translations from one animal to another, and when this occurs you will run into difficulty with succeeding cases developed.

It has also been shown that sulfapyridine acts well given late in the disease and there are no contraindications to giving it along with serum. Drs. Lowell Brown and Finlan, in a selected series of cases, gave the two together, and according to this report reduced the mortality from 50 to 26 per cent in this particular kind of case, using the two together. His explanation of that is that because of the debilitated condition of the patient no immune antibodies have been developed. Consequently, the capsule of the organism cannot be penetrated so as to kill the organism out. By giving sulfapyridine, there will be produced bacterial stasis, slowing up of the growth of the organism, and in addition, giving the serum will activate the capsule of the organism, thereby allowing the phagocytes left to destroy them. In his series the results were gratifying in this selected type of cases.

Dr. J. P. Sanders (Caspiana): Sulfapyridine is certainly a wonderful drug in general practice and especially in the treatment of lobar pneumonia. However, other fields of chemotherapy have been opened up before. We have a drug, quinine, over 300 years old, which was not recognized as a chemotherapeutic agent until recently. Later 606 came in and then neosalvarsan, neither of which is antibacterial in action. When first discovered sulfanilamide was considered useless. Of course, we now know that it sets off some sort of mechanism that kills the organism. We wonder how many fields are going to be opened in the near future by other drugs, such as sulfanilamide, sulfapyridine and sulfathiazole have done. It appears to me that vast fields of chemotherapeutic reactions are going to develop soon and a great many uses may be made of them not now known.

I would like to ask Dr. Herrington what his opinion is of the method of action of sulfapyridine.

Dr. Henry D. Ogden (New Orleans): I think in evaluating the effects of sulfapyridine we have to keep in mind the causative organism. Pneumonia may be caused by other organisms than the pneumococcus. I recently had occasion to see a rather rare case, a case of staphylococcic pneumonia. The diagnosis of staphylococcic pneumonia was made because the sputum repeatedly was loaded with staphylococci, and on one occasion the blood culture was positive. At no time at all were we able to find more than a few pneumococci, and that on only one occasion. This patient was put on sulfapyridine with no results at all and the blood count dropped to 3,000. Finally, in desperation the patient was given one of the new drugs, sulfathiazole or sulfamethylthiazole, but the patient died after several days. I understand that two other physicians in New Orleans had two similar cases. The same type of treatment was followed with sulfathiazole or sulfamethylthiazole, I cannot say for sure which, but I do know it was one of these drugs. Therefore I think in evaluating the results of sulfapyridine we have to remember the causative organism of the pneumonia, as these new chemical agents have varying effects on different organisms.

Dr. W. F. Drummond (Shreveport): In pneumonia many men give sulfapyridine as a means of prevention. That is to be condemned and if continued to be used in that way the mortality from lobar pneumococcal pneumonia will rise. Again, to give it in small doses, the organism becomes quite resistant and later full therapeutic doses are of no avail.

The majority of men have gotten away from typing the organism; to me that cannot be done. Plummer has clearly shown that with sulfapyridine alone there was a mortality of 17 per cent in type III pneumonia which could be reduced to 11 per cent with the use of type III serum and sulfapyridine.

There has appeared in the literature something we have seen before only rarely and that is, the same type pneumonia recurring in the same patient. The patient will have a type III or type IV pneumonia and be discharged from the hospital to return in four or five days with pneumonia of the same type.

It has been our experience that unless the typing is done before sulfapyridine is started that we cannot type the organism, but get a negative "Quellung." Pharmacologic houses deny such, but other men have found this to be true. Willoughby's impression in the beginning was that the action of sulfapyridine was on the capsule and this has been our finding.

In all probability sulfathiazole will be accepted very soon. We have used sulfathiazole experimentally at the Highland Sanitarium in Shreveport, but as we use sulfapyridine in pneumonia, and have had only one case of staphylococcal pneumonia (proved by sputum and blood culture) I cannot answer Dr. Ogden. I do not think sulfamethylthiazole will be placed on the market since The Mayo Clinic reports the all too frequent occurrence of a peripheral neuritis after its use.

Dr. C. P. Herrington (In closing): In answering Dr. Sanders' question, I cannot do anything about that. I have not found anything in the literature in regard to the mode of action. As Dr. Drummond said, the action was first thought to be on the capsule; this idea was changed and thought to be purely bacteriostatic in action. Now we are not so sure but that the action is on the capsule.

THE EVALUATION OF VARIOUS INTRAVENOUS MEDICAMENTS IN THE TREATMENT OF SHOCK*

O. W. McFARLAND, M. D.
Pineville

and

JOHN H. CONNELL, M. D.
New Orleans

The venous channels have been the chosen route for the introduction of certain medicaments for many years. The earliest attempts at intravenous therapy date centuries back, but only recently has this type of therapy become prevalent. It is especially efficacious in those conditions wherein the extra-cellular fluid content of the body has become altered by some pathologic process. Circulating extra-cellular fluid is represented by the blood plasma. This fluid constitutes the immediate environment of the organism and the degree of normalcy of the individual is proportionate to the normalcy of this medium. The extra-cellular fluid sustains two important services, the conveyance of nutrition and waste materials and the regulation of the physico-chemical conditions within the organism.

To supplant deficiencies of the elements that are necessary for electrolytic balance has been the apparent objective for which therapeutic attempts have been aimed. The administration of solutions containing sodium chloride will ofttimes correct a disturbance of the electrolyte pattern in alkalosis and in moderate acidosis. Sodium bicarbonate or sodium lactate can be given to advantage in cases of severe acidosis. A mere balanced salt solution alleviates the condition of severe dehydration, and intravenous glucose is efficacious in supplying energy when other more normal routes are unavailable.

There are, however, various conditions in which additions to the blood stream fail to return extra-cellular fluid to normal. The intricacies of the vascular tree and osmotic phenomena are ill understood. It is common clinical experience in treating certain conditions that large amounts of the usual fluid agents can be administered without correcting the underlying defect. Severe burns, and in the condition clinically known as shock, due either to trauma or hemorrhage, there is little success in regaining or maintaining normal vascular conditions.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

Before evaluating means of therapy in the treatment of shock, brief analysis of the mechanism of this phenomenon must be considered. The hypothetic toxic theory has long been unconfirmed and generally discredited. The initiating factors are devious, including trauma, bleeding (external or internal), loss of plasma leading to concentration of the blood, fear, asphyxia, or cold. All of these factors lead to hyperactivity of the sympathetic nervous system. This in turn leads to changes in the permeability of the walls of the blood capillaries and loss of the intra-cellular fluid content of the blood. This decrease in the volume of the circulating blood is generally admitted to be the essential lesion in shock. Quoting Freeman,[1] "shock is the clinical condition characterized by progressive loss of circulating blood volume brought about by the tissue anoxia which results from inadequate circulation."

TREATMENT

In the treatment of shock, it should be the aim to restore vascular tone and vascular volume to a normal state as rapidly as possible. The introduction of fluids such as saline, Ringer's and glucose, have been a notorious failure in maintaining such a condition. It, in most instances, is at best of only transitory value and is rapidly depleted from the venous channels. Acacia has been found to be a more stable medicament and will, ofttimes, re-establish and maintain vascular tone. The attendant reactionary dangers of acacia are of such frequency, however, that it is being abandoned.

Whole blood transfusions have been used with considerable success. If given in time, vascular volume and tone are re-established. There are, however, definite imperfections and shortcomings in the use of this agent. The time element of obtaining the necessary Wassermann-negative compatible donor has been the immediate cause for many fatalities. The red blood cells which are introduced into the blood stream are not the answer to the needs of restoring vascular tone. They constitute merely an added bulk which might further lead to a concentration within the body. The anoxia of tissues is not due solely to the loss of the vehicular agent to transport this hemoglobin.

It is surprising then, that it has taken so many years for physicians to realize and to use to advantage that portion of whole blood which is the beneficial agent. The introduction of human blood serum or plasma seems the most natural thing, as it contains all the virtues and none of the vices of other intravenous fluid medicaments. Within this are found all the attributes that are present in a normal environment, including a protein fluid which is not permeable to the capillary walls and one that will remain in the circulation.

LITERATURE

The experimental use of blood serum in combating experimental pathologic conditions has recently been done by Mahoney,[2] who produced traumatic shock in dogs and noted the advantages of serum over other intravenous agents. Bond and Wright,[3] after extensive animal experimentation, concluded that serum is alone capable of raising and maintaining blood pressure for any length of time. More recently, Levinson,[4] employing dogs, found it effective in combating shock, secondary to severe hemorrhage. Working on human subjects, favorable reports have recently appeared in the literature, the latest by Strumia,[5] who concludes that "the intravenous administration of blood plasma has proved to be an ideal means of restoring an adequate blood circulation in patients suffering from secondary shock, rapidly relieving the clinical manifestations." McClure[6] has successfully treated severe burns with blood serum.

A limited working experience reveals at once the almost miraculous therapeutic effects of this agent in the treatment of shock. The results obtained with serum or plasma are almost identical. Ease in obtaining the material, and reportedly rare shock attending serum administration make plasma the agent of choice.

Here, briefly, is a representative case:

CASE REPORT

A colored male, 40 years of age, entered the hospital four hours after a traumatic amputation of the right lower extremity above the knee. On entrance, the man was in profound shock, exhibiting all the clinical signs and having a systolic blood pressure of 40. Serum was at once administered at the rate of 10 to 15 c. c. per minute. After 35 minutes, the blood pressure was 110/60. In one hour and fifteen minutes after the administration of 650 c. c. of serum, the blood pressure was 124/64. Three hours after entrance into the hospital, 950 c. c. of serum had been administered. The man had recovered from symptoms of shock, blood pressure was 170/90, and the patient was in such condition that he was considered a good surgical risk. Disarticulation of the thigh was done. During the operation the blood pressure dropped to 90/60, at which time intravenous serum was again started. Twenty minutes later, before the operation had been completed, the pressure had been re-established to 160/78. There were no reactions and no ill effects from the large amount of serum that the patient received. The postoperative course was remarkable and in 24 hours, the patient showed no ill effects and was normally taking nourishment.

In all the patients who have received serum while in a state of shock, response has been as immediate and as maintaining as in the example cited.

THE SERUM BANK

The establishment and maintenance of a serum or plasma bank is not attended with great difficulty or cost. The technic[7,8] is relatively simple and is not beset with the pitfalls of a blood bank. Blood is drawn as in the usual manner for giving an indirect transfusion, either citrated or noncitrated. Within 250 c. c. containers is an antiseptic agent of sufficient strength to make the solution bactericidal (in this instance tricresol making a 1:5000 dilution). The blood containers, after 24 hours (optional), are centrifuged and the plasma or serum content removed by suction into a sterile 2000 c. c. container. When this is filled it is proportioned in convenient 500 c. c. infusion receptacles. This is then placed in the icebox and is ready for immediate use. In pooled human serum, typing and matching is unnecessary and the immediate use while still cold has never given adverse reactions. Supplementing the bank is dependent upon the individual who has used the serum.

The dosage used is, of course, dependent upon the size of the individual and the severity of the condition. It may be generally stated that serum should be continuously administered until the patient has entirely recovered from the symptoms of shock. In most instances, 500 c. c. will suffice. The speed of administration is controlled by nature. Using a nineteen gauge needle, it will deliver by the gravity method, approximately 10 to 15 c. c. per minute. Plasma or serum may be diluted with equal amounts of saline or dextrose solutions and administered in this way. Heating of the serum should be avoided, as chemical reactionary changes may alter the serum.

SUMMARY

Serum, and more especially plasma, appears to be the ideal medium for the permanent establishment of proper circulation in shock. Its protein content and osmotic quality re-establishes normal conditions within the extra-cellular fluid, which is so necessary for the environment of the organism. Practical use has shown its efficiency in restoring circulation to a normal level even in those cases accompanied by a very large loss of blood. In severe hemorrhage, the loss of erythrocytes is a secondary factor. It contributes little to the state of shock, providing the volume of blood can be maintained. Further, it is easily obtainable, can be kept for long periods (months), is always ready for immediate use, is free of untoward reactions and can be readily transported as agitation does no harm. With the use of serum it is possible to avoid the emergency blood transfusion which is ofttimes too late. In severe trauma it can be used prophylactically to prevent the occurrence of shock. It appears, and has been reported, to be lifesaving in severe burns that exhibit such a high degree of blood concentration. Its use will be a potent medical instrument in times of disaster and war.

CONCLUSION

The intravenous administration of blood serum and plasma has been completely satisfactory in treating patients exhibiting severe signs of shock. Abnormal pressure defects are corrected rapidly with the absence of adverse reactions.

REFERENCES

1. Freeman, N. E., in Stroud: Cardiovascular Diseases and Their Treatment, Philadelphia, F. A. Davis Co., 1940.

2. Mahoney, E. B.: Experimental and clinical shock with special reference to its treatment by intravenous injection of preserved plasma, Ann. Surg., 108:178, 1938.

3. Bond, D. D., and Wright, D. D.: The treatment of hemorrhage and traumatic shock by the intravenous use of lyophile serum, Ann. Surg., 107: 500, 1938.

4. Levinson, S. O., et al.: Human serum as a blood substitute in the treatment of hemorrhage and shock, J. A. M. A., 114:455, 1940.

5. Strumia, M. M., Wagner, J. A., and Monaghan, J. F.: The use of citrated plasma in the treatment of secondary shock, J. A. M. A., 114: 1337, 1940.

6. McClure, R. D.: The treatment of the patient with severe burns, J. A. M. A., 115: 1809, 1939.

7. Strumia, M. M., Wagner, J. A., and Monaghan, J. F.: The intravenous use of serum and plasma fresh and preserved, Ann. Surg., 111:623, 1940.

8. Tatum, W. L., Elliot, J., and Nesset, N.: A technique for the preparation of a substitute of whole blood adopted for use during war conditions, Military Surg., 85:481, 1939.

DISCUSSION

Dr. A. L. Culpepper (Alexandria): I feel that this is a very important and timely subject. I think it is going to be of great benefit and will have a definite change in the treatment of shock, particularly from hemorrhage. The subject has been admirably covered. Certainly, I have nothing to add, but I should like to emphasize a few points.

It appears accepted that shock following hemorrhage is due, not specifically or entirely to the loss of the red blood cells, but to volume diminution, lessened circulation, tissue anoxia and increased capillary permeability. If this condition is not reversed at once it may result in death. The principles of this theory of shock were emphasized some ten years ago by Wangensteen in the Journal Lancet, and at that time administrations of saline and acacia solutions were used. Immediate restoration of fluid volume prevents secondary shock. Delay in this restoration increases shock, and possibly, death. The electrolytes such as saline solutions are of definite value, but their efficacy is somewhat limited by the fact that they are lost from circulation by the lowering of the blood volume and osmosis. Serum fills the qualifications entirely except in cases of extreme loss of red blood cells, in which the hemoglobin has fallen to 20 to 30 per cent, so it is quite important that we have an immediate restorative and that is what we have in serum which can be given without delay. That whole blood is judged efficacious and is accepted, but it requires Wassermann reaction, it requires typing, and this delay is sometimes fatal; serum can sustain life in this interval and red blood cells if needed can be given as soon as whole blood can be procured.

Dr. Urban Maes (New Orleans): This speaker is one of those who has lived through the various phases of replacement therapy. The replacement of fluids has undergone many alterations. I do not want to go into a detailed discussion, but merely would like to make one or two suggestions. I think that Dr. Connell has pointed out an actual need and has properly stated in his paper that it seems peculiar that surgeons have taken such a long time to awaken to the realization that such a need exists.

I believe when we consider fluid replacement in detail, three losses must be rectified: the loss of fluid, the loss of plasma, and the loss of electrolytes. In shock or hemorrhage, replacement of the plasma volume is the crux of the therapeutic problem. Replacement of cells does not seem to be imperative, particularly in the presence of hemoconcentration.

The goal we are attempting to reach is to find some sort of solution that will stay in the circulation. As you know, the various solutions administered do become extravascular and there is no way of keeping them in the circulation on account of the alteration in the permeability of the capillaries.

We have been doing some work recently along these lines stimulated by Dr. H. A. Davis of the L. S. U. Department of Surgery. In order to get serum and have it available, we have been resorting to human ascitic fluid, and it does seem to me that in human ascitic fluid we have the help we need. It does contain the replacement elements necessary and in an available form. Furthermore, I believe replacement of a reduced blood plasma volume with human ascitic fluid is so simple and easy that we have a means of supplying the deficiencies and of supplying a fluid that is going to remain in the circulation. Thus far, in our observations, we have preserved human ascitic fluid for five months at a temperature of 5° C. and have transfused it after such a period of preservation without ill effects. There are very few hospitals in which there are not always a certain number of patients who are going to be tapped quite often, and the only thing necessary is to tap under aseptic precautions, collect the fluid in aseptic containers, be sure you have a syphilis-free patient, and then you have large quantities of human ascitic fluid ready for use, which fills all requisites necessary. There are one or two things we have to consider. The only human ascitic fluid which should be used is from patients suffering from cardiac decompensation or from portal cirrhosis of the liver. Be sure that the patient does not have carcinoma.

We add 50 c. c. of a 5 per cent solution of sodium citrate to each 1,000 c. c. of ascitic fluid. This prevents fibrin clot formation. Of course, the fluid should be cross-matched with the blood of the prospective recipient. Some work was done in Ravdin's clinic with lyophilized human serum, but he found such severe reactions that he became discouraged about its use. We have so far had 22 patients in whom ascitic fluid has been used, and I know of only one reaction of any consequence, and the patient came quickly out of that when transfusion was stopped. No typing had been done in this particular instance. If we want human blood serum in usable form, we can depend on human ascitic fluid. With the growth of this idea, we may be able to dispense with blood banks, Russian canned blood, and all the other things we have been using.

Dr. W. F. Drummond (Shreveport): I would like to ask one question. Dr. Connell mentioned the use of an antiseptic in the blood plasma. Was this sulfanilamide or merthiolate?

If I understand the terminology correctly, serum and plasma were used synonymously. Serum and plasma are not synonymous terms nor can the two be used with the same degree of safety. There has been reported in the literature a number of reactions from the use of serum, whereas from plasma such are rather rare. Many of these reactions have been attributed to the use of heated serum and I think it wise again to caution the operator to administer plasma or serum at 4° C.

In large hospitals where a method of centrifuging whole citrated blood is feasible the administration of plasma is a simple matter, but in the smaller hospitals another method can be devised by allowing the cells from whole citrated blood to settle out and the supernatant fluid—plasma—withdrawn and administered as such.

The use of acacia should be limited to those cases where plasma or whole blood are not obtainable. It is also well to remember the difficulty encountered in cross matching after acacia has been administered.

Dr. O. W. McFarland (In closing): I feel that these serum and plasma infusions are primarily lifesaving procedures at the present time. On several occasions we have given quite large amounts, on one occasion 1600 c. c. in three hours. There are reports of this serum being kept as long as a year and no reactions followed its use.

I want to emphasize again that Wassermanns are not necessary. We have been using Wassermanns in our work with this; however, spirochetes do not live long at ice box temperature. Also, typing and matching of blood before the serum is given is not necessary.

For the antiseptic in our serum we use tricresol, 1:5000. It seems to take care of the situation very well.

I think the use of serum and plasma should be encouraged because it is very gratifying whenever you have a patient who needs immediate transfusion, to be able to take from the shelf, so to speak, the serum or plasma and give it as you would glucose or saline.

PRESENT STATUS OF THERAPEUTIC SHOCK IN PSYCHIATRY*

EDMUND CONNELY, M. D.
NEW ORLEANS

Schizophrenia and dementia precox have, for many years, constituted a major psychiatric problem. They are considered, especially dementia precox, as malignant psychoses, and a successful treatment for them has been sought by psychiatrists throughout the world. I hope that nothing I say will be construed as undue or destructive criticism, as I have no such thought, but feel that the recent enthusiastic therapeutic efforts by hospitals, clinics, and individual psychiatrists, are deserving of the highest praise. I am sure it is agreed that the development of an empirical treatment for any condition is putting the cart before the horse, but think any treatment which will give better results than the methods now in use, for conditions so serious, and so little understood, is worth while, and it may eventually help to a better understanding of the disease itself.

Treatment of schizophrenia by the insulin shock method, as introduced by Sakel, and irritative therapy with metrazol or camphor, as developed by Meduna, seem to offer considerable promise, although it is not understood just how they act.

A discussion of the development of these treatments, or the technic of their administration, is rendered entirely unnecessary by the mass of articles in the medical literature and, I am sorry to say, the lay press as well, indicative of the tremendous interest—we might say enthusiasm—with which the methods have been received by the profession both in this country and abroad. The statistics as presented in most of these articles, if accepted without due analysis, would suggest that the millenium is almost here so far as dementia precox or schizophrenia is concerned. Even taken conservatively, the figures given apparently indicate far more promise than other empirical treatments, such as colostomies; the removal of infected tonsils and teeth; the administration of practically every variety of endocrine substance; the induction of the various types of hyperpyrexia; prolonged narcosis produced with barbiturates and other drugs, and so on, offered when first introduced, although all of these more or less recently discarded, or practically discarded, methods were brought out with reported cures, remissions and improvements.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

STATISTICAL FINDINGS

The reports would likewise seem to offer more than psychoanalysis, which has been helpful, but no more so than the usual methods of psychotherapy generally employed. In estimating the value of any specific treatment of a disease, the result obtained must be compared with the results of other treatments. And the findings of individual observers in the use of it must be compared. Immediately, it appears that while the reported results with insulin and metrazol used separately, and sometimes together, are generally good, they are inconsistent, most markedly in the earlier reports. Not only did the European and American reports, as a whole, vary, the European being somewhat better than the American, but those of individual writers showed discrepancies. M. Muller got 70 per cent to 80 per cent full remission with Sakel's method in patients ill less than six months to one year; four out of 27 ill from seven months to one year (18.5 per cent); and three of 57 with over a year's duration (5.2 per cent). M. Marzyuski's figures were very much less. From America, Young reported on 31 insulin cases, 17 of less than six months' duration; 10 of six to 18 months' duration; and four over 18 months; 18 obtained remissions and four improved (70 per cent). Wortis obtained full or social recovery in 19 out of 30 insulin cases (63.3 per cent). Cameron, out of 17 patients, seven ill for less than six months and 10 from six months to four years, reported two apparent recoveries (11.7 per cent), with five others improved for variable lengths of time, a total improved group of 41.1 per cent. Nielson, with 39 patients, nine under one year's duration; 11 of from one to two years' duration; four of two to three years' duration; three of three to five years' duration; and 12 of five to 12 years' duration, had 77 per cent improvement in the first group; 27 per cent in the second; 25 per cent in the third; none in the fourth; and 16 per cent in the fifth. These figures, taken at random from earlier reports, are typical, and those on metrazol are so parallel that I need not burden you with further illustration.

These variations indicated that the statistics should not only be established by the treatment of larger series of patients and by the observation of treated patients a sufficient time to prove or disprove the permanency of the results obtained, but should be carefully analyzed for avoidable factors affecting their real accuracy and their usefulness for comparative purposes.

One was startled by the 88 per cent "definite remissions" of Dusik and Sakel, with 70.7 per cent "full remissions" in 58 new cases, and by many other reports, but as you reviewed the literature you realized that the various individuals and clinics were apparently using remission and other terms with different interpretations, that while some authors were careful to define their statistical terminology, most did not, and there was really no standard interpretation of the statistical terms. Remission did not mean a cure, but a change for the better, varying in degree with the author's ideas; recovery did not mean a cure; not even "cure" meant a cure, but all signified a certain change in symptoms for the better, which may or may not have been lasting, and varied in extent with the individual report.

Again, at first, and to a considerable extent still, the patients were obviously selected for their probable susceptibility to treatment, that is, young, newly developed cases far outnumbered the older chronic cases, which are admittedly poor treatment risks. Thus, it becomes apparent that the figures published did not represent the true reaction of the treatment on dementia precox or schizophrenia as disease entities, but its effect upon that part of the entity most readily affected, the part which is also most susceptible to spontaneous remission. Further, it was not uncommon to see reports on cases of a few days, a few weeks, or a month's duration. Occasionally, an author specifically stated this to be as of the time of admission to the hospital or clinic, but usually one was left to suppose the actual duration from the time of onset of illness was meant, and, knowing as all of us with any degree of clinical experience do know, that it would be most unusual, if it ever happens, for a patient with dementia precox or schizophrenia to apply for treatment within a month of the true beginning of his illness, we cannot but realize that in our anxiety for good results we had thrown the gates wide open to diagnostic error.

The lack of a properly authenticated prognostic baseline in dementia precox or schizophrenia further complicates the situation. All of us, no doubt, have had more or less definite ideas as to the prognosis, and textbooks furnish certain estimates as to the prospective course of the disease, but actually there are few data to establish an authentic prognosis for comparison. Cheney's study of 500 cases from the clinical service of the New York Hospital, Westchester Division, White Plains, New York, treated by non-specific methods, read before the American Psychiatric Association in June of 1938, is of interest as it affords not only comparative data on the results obtained with the customary psychotherapy, but valuable information on the prognosis of the condition. At the same meeting, Romero and Ebaugh, and Malamud also, called attention to the lack of prognostic data and reported the results in extensive series of cases followed for an adequate time. Since, Rennie and others have made reports. These statistics, while inadequate, afford a clearer idea of the results obtained with older methods and give some basis for comparison with the new. Unfortunately, they represent the "run of the hospital patient," as it were, the entire group as an entity, and are not selected cases, as is so often the case in the reports on insulin and metrazol results, and have been followed over much longer periods than it is yet possible to follow the latter group.

DIAGNOSTIC CRITERIA

The variable diagnostic criteria are the most important of all factors influencing reports, as the difference in individual conceptions of the diseases affects the initial diagnosis and the appraisal of the final outcome of cases and makes tabulation difficult. We have all, more or less, come to accept the terms schizophrenia and dementia precox as being synonymous, and they are used synonymously in our hospitals and clinics, but in the conceptions of Kraepelin and Bleuler the conditions differed considerably. According to Rosanoff, schizophrenia not only comprised chronic deteriorating psychoses of adolescence and early adult life, but many mild, acute, recoverable and chronic but non-deteriorating psychoses as well. It was a more inclusive designation than dementia precox and represented a different conception, with many recoverable cases not considered dementia precox, which was a disease developed in adolescence or early adult life tending towards chronicity and deterioration, although Kraepelin did recognize a tendency in some cases to improve or recover. The acceptance of the two conditions, as the same, together with the lack of knowledge as to the exact nature of either one, has produced a state of more or less chaos, diagnostically speaking. It is not difficult to understand how readily conceptions may vary, and how easily individual workers may differ as to the demarkations of the groups, and contract or expand them to suit their own ideas, some broadening them to include cases ordinarily considered as neuroses, others restricting them to much narrower limits. With a disease so little understood, whose symptoms are practically all subjective, especially in the early stages, which is the most effective period for treatment, the most experienced clinician may make mistakes in diagnosis which must influence reports one way or another, and further affect results by adding or taking away cases from groups. Thus we are confronted with a mass of confusion. We are treating a disease, or diseases, the nature of which is not understood, whose limitations are poorly, or at least loosely, defined, with symptoms that are practically all subjective, and an entirely indefinite prognosis, by methods which are purely empirical.

EVALUATION OF TREATMENT METHODS

It is agreed that the first requisite for evaluating treatment methods is an authentic prognostic baseline. We cannot establish this baseline with any degree of certainty by studying the results obtained in various hospitals and clinics alone, no matter how long we follow the patients or how thoroughly we re-examine them. We must establish some more or less standard terminology for designating results, and some more or less standard classification for the grouping of patients, not only those treated by special methods but all patients. Unless physicians use the same language in describing what they are doing, and as nearly as possible standardize their material, their results cannot be properly tabulated and it will be difficult to judge with certainty the merits of any new treatments developed as compared with those which have been in use.

As the first wave of enthusiasm following the introduction of the insulin shock and metrazol methods of treatment spent itself, the swing of the pendulum towards conservatism began. Observers during the past months have generally recognized the necessity for more coordinated studies, because of the statistical difficulties. They feel the need for more knowledge as to the physical effect of the treatments on the patient and its method of action, and an orderly investigation of the two methods has developed.

Reports on large series of patients not treated with specific methods, and followed over long periods, afford more and more data on what the usual prognosis has been. Writers are able to report on larger series of specifically treated patients with longer observation periods and with control series. Definite efforts to conform in the matter of diagnostic criteria and terminology are apparent, and accidents or possible ill effects are receiving careful consideration.

In the use of metrazol, accidents such as fractures of long bones and vertebrae or dislocation of the jaw, due to the muscular contraction, are reported with a certain degree of frequency, and some deaths occur. I have no statistics on the occurrence of fractures but they are frequent enough that some authors recommend x-ray examination of the spine whenever pain in the back occurs after metrazol. Deaths happen in about one-half of 1 per cent of the cases. The dangers of insulin shock are, of course, obvious and deaths have occurred. I do not have the degree of occurrence; one author, comparatively recently, reports three fatal results out of a series of 100 insulin cases, but I am sure this is exceptional. As to latent effects, they can not as yet be determined. A number of writers report changes in the brain tissue and cells in fatal insulin cases. These findings, and the facts that insulin is thought to act by reducing the oxygen supply of the brain, lead to the belief that it probably does produce permanent brain changes.

It would seem that it is yet too early to render final judgment as to the usefulness of these methods of treatment in psychiatry. Their use in conditions other than schizophrenia and dementia precox is under investigation, and to judge by the follow-up reports on cases of schizophrenia and dementia precox treated by the usual methods, it would appear that several years more of observation of treated patients is necessary before the permanent results obtained can be ascertained. The 70 to 80 per cent of "full remissions" have already, to a large extent, disappeared from the literature and statistics are much more conservative.

In May, 1938, one hospital reported 82.6 per cent "improved." The same hospital in January, 1939, reported 61.1 per cent as "showing some degree of improvement." These last figures are still comparatively high, and another hospital of the same state as the above reported 36 per cent showing various degrees of improvement in 100 patients treated. A representative private hospital reported 38 per cent improvement in a series treated with insulin as against 20 per cent improvement with the other methods; but the older method cases were observed five years, and the insulin cases only eight months.

CONCLUSIONS

Unquestionably, the statistical reports have become more conservative as the cases have been followed, and apparently the estimations as to the degree of improvement are more conservative. It would also seem to me that the attitude of the majority of psychiatrists has changed from one of hopeful optimism to one of hopeful skepticism. There is no doubt that most of the observers still feel that these treatments should be continued in use and developed, and still feel that there is hope of their being more useful than the older methods of treatment. But they are very much more conservative in these hopes, and, as time goes on, are beginning to realize that the results obtained are more and more nearly approaching the results obtained by the older methods. They are also beginning to consider the possibility of permanent deleterious effects to the patient.

DISCUSSION

Dr. D. H. Duncan (Shreveport): I am inclined to agree with Dr. Connely in many of his statements. I particularly like the attitude of conservatism which he has developed toward pharmacologic shock therapy. I believe that in any new treatment, particularly one that apparently offers considerable hope for patients previously considered as offering a poor general prognosis, there is likely to be a definite over-enthusiasm shown. This is decidedly unfortunate. The treatment usually is extended in its use far outside the field in which it is best adapted and it is too often used by workers not well oriented in its use, both of these factors contributing to poor results and an over-critical and often depreciatory attitude toward the method. I think that this is the case with pharmacologic shock therapy. Early records did, no doubt, strike a more enthusiastic note than later follow-up of the cases will justify. The use of the method has certainly been attempted by many workers without sufficient training and experience in its use. Therapeutic technic, manner of selection of cases and evaluation of results vary considerably with various workers reporting. This, of course, does contribute to conflicting reports. Insufficient time has elapsed for adequate follow-up of patients treated. Even if the etiology and pathologic physiology of the so-called functional psychoses were known, the newness of the treatment methods would result in conflicting reports by various workers; and, since neither the etiology nor pathologic physiology of these reaction types are at present understood, and since a new and empirical method of treatment is being employed, it is to be expected that a period of considerable confusion as to the actual results being achieved might occur. This is, I believe, at present the case. Certain workers are, no doubt, still overly enthusiastic. Certain others are equally overly critical. The truth probably lies somewhere midway between these two extremes. My own experience and my contacts with other persons constantly using pharmacologic shock therapy during the past few years has led me to adopt a rather conservative attitude toward the method throughout my experience with it. I feel that any method of treatment in these or other conditions must, of necessity, have its limitations, and must be used in cases to which it is best applied. I do not believe the fact that treatment offers its best results in early cases and that cases of more than eighteen months' duration show an extremely high percentage of failure, condemns the method. In appendicitis and other medical conditions, the statistical results of treatment are based on treatment instituted as early as is possible in the illness. Certainly, I think it would be asking too much of any method of treatment to expect a good result in deteriorated cases. Sakel stated before one of our meetings two years ago that it was his impression that most of the cases being referred for insulin therapy were too far advanced. Certain types apparently respond best to insulin and certain others to metrazol. Individualization as to depth of coma, duration of coma, number of rest days, when to discontinue or re-institute treatment, is necessary. My own experience, extending over two years of actual constant use of both insulin shock therapy and metrazol therapy, has been such as to justify my continued confidence in the method. I realize that working in neuropsychiatric services in general hospitals, I would naturally see the earlier and therefore more hopeful cases, and that results are influenced particularly by this factor. The number of cases which I have observed and which at present are being followed after treatment is, of course, too small to be of great statistical value. However, the result both as to remission of symptoms and as to infrequency of injury, corresponds closely to the percentages quoted by various workers earlier, and in admittedly more enthusiastic reports. I am perfectly aware of the fact that if the cases of longer duration had been included in the material, that the results would have been much less gratifying. My present belief is that the present critical attitude will soon wear itself out just as did the previous attitude of over-enthusiasm toward these methods of treatment, and that a more wholesome, middle-of-the-road attitude will follow. I think that patients will be more carefully selected and that

---

Due to lack of space, the author's bibliography of some seventy-five references had to be omitted.

both methods of treatment will, no doubt, be modified, or even perhaps some entirely different pharmacologic approach developed. Certainly, I do not believe that until something better is developed that we are justified in discarding, or in hesitating to use these methods in properly selected patients. I do not believe that any worker in daily contact with patients undergoing treatment and following them periodically after treatment is terminated, can doubt that they offer improvement superior to anything that we have had in the past.

Dr. C. P. May (New Orleans): The brain is nourished mostly by sugar and oxygen supplied by the blood. Insulin reduces blood sugar and shock ensues. Metrazol causes convulsions, respiration stops and no oxygen goes to the brain; shock follows.

Both insulin and metrazol shock treatment of the psychoses are dangerous, difficult to control and expensive.

Dr. Himwich and associates of Albany Medical College are using another method of treatment. They attach a breathing bag to the respiratory passages. Oxygen is introduced into the bag and gradually replaced by nitrogen. Convulsions occur and promptly cease on the re-administration of oxygen.

This method of procedure is safe, easily controlled and inexpensive and has given encouraging results in a number of cases.

Perhaps Dr. Connely will mention his views regarding this method in closing the discussion.

Dr. C. S. Holbrook (New Orleans): I think that recent treatment has done a great deal for dementia precox primarily and for other mental cases that have so long needed more attention. I think we have been, possibly, a little over enthusiastic, but from this wave of enthusiasm will come some good, no question about it. We must temper our anticipation of good results from the reports that first came out. I am still using the treatment. I may give it up and take up something else; at least I feel a bit more optimistic about treating actively schizophrenic cases.

There is a change we should note and that is the use of shock treatment in other than the schizophrenic and dementia precox patients. I am quite impressed with the good results that we get from depressives, and the treatment if it was not good in dementia precox cases, I think should deserve consideration in the treatment of depressives. In many, it shortens the period of invalidism by months. They get out of the periods of melancholia very much more promptly than otherwise. Whether they are subject to recurring manifestations of such reactions in manic depressive psychosis, I do not think we can say yet. Each one of these attacks, in the large majority of instances, can be cut short by metrazol treatment or insulin treatment. Right now, I get very much better results in the depressions than with any other treatment I can institute.

Dr. Walter Otis (New Orleans): Dr. Connely has given us a very interesting paper, up-to-date statistics and evaluations, and I think we of the neuropsychiatric group and the practitioner in general should realize that shock treatment is another form in our armamentarium that we may use in helping the neuropsychiatric cases. It is here to stay. It has been used for many years now, and we feel, therefore, that it is of aid. It has been a help in a number of cases; it has caused the recovery, as we term it in neuropsychiatry, of other groups. One can use the shock treatment, depending on the age, and the type you see. If one does nothing more than elevate the patient's condition from a lower to a higher plane in some cases, in others where the patient is permitted to return home, then again when they make a recovery, there is no reason why this treatment should not be continued.

In other series when patients are able to resume their daily routine of life, take part in all activities and have remained as recoveries for two years, I think we are justified in giving these forms of shock treatments. The method cannot be used as a panacea for all neuropsychiatric conditions. This must be borne in mind previous to admission.

The treatment is drastic, dangerous and dramatic, should be used with caution following a complete physical and neurologic survey. It must be given only by those properly trained.

Dr. Roy Carl Young (Covington): Dr. Connely has given us a paper presented in a way which considers the subject from all angles. He is very conservative in his statements, and at the same time has given a good account of the whole situation.

Shock therapy, as Dr. Duncan said and as Dr. Connely has said, has just reached a stabilizing point in its use. In a very short period of time the neuropsychiatrist will find the definite types of cases which will give the very best results. I think the method used by Dr. Connely and Dr. Duncan in their work is doing a whole lot about stabilizing opinions in this valuable type of treatment.

Dr. C. S. Miller (Jackson): I appreciate Dr. Connely's realization of the importance of diagnosis in these cases. Unfortunately, in our hospital work we do not get any cases that are two months to six months in duration. Most of the patients who come into the hospital have shown deterioration in their mental field. We do, however, receive a certain number of these patients into the hospital, and these individuals, as a rule, retain some insight. After a period of a short while, these patients recover spontaneously, or with treatment, and they go back without apparently any deterioration and clear insight into their condition.

I cannot agree with some of the others as to the wonderful results of insulin and metrazol treatment. We used insulin at the hospital for one year. This past year we had something like 120 or 125 metrazol cases. Now, we selected for all these cases definite dementia precox, and our results were not satisfactory. I do think that a large number of the reported remissions, cures or recoveries, are in our depressives, psychoneurotics, and the ones I term as acute schizophrenic reactionary types. I think this accounts for the large percentage of recoveries or cures claimed. But when it comes to dementia precox where actual mental deterioration has taken place, in any patient who has had a psychosis existing for years or many months, I will be frank to say our results were not satisfactory.

I was glad to hear Dr. Connely say that they are leaning towards more conservative treatment and better selection of their cases, because if anything is to be gained, I think it will be in the very early manifestations of the disease. It is in these cases one may find any form of shock therapy and psychotherapy to be beneficial, but in older cases our results have been disappointing. Then, too, in early depressions it may have some value, for they too may respond to shock with some form of psychotherapy.

I am glad to see the attitude Dr. Connely has taken toward this type of treatment.

Dr. Edmund Connely (In conclusion): With reference to Dr. Duncan's remarks about early cases, I do not wish anyone to think that I am criticizing the selection of early cases, but I believe that we should realize in making estimates of treatment results, that we have been using the early cases, to a large extent, and that these patients are those most susceptible to spontaneous remission. So we will not arrive at false conclusions in comparing the statistics we now get, with those of the older treatments, as the later statistics include all cases, deteriorated as well as early. I believe, and I believe it is generally felt, that metrazol and insulin should still be used, and I feel that if we did not get good results in any except the early cases, that the two methods would still be worth while. Our present attitude is far healthier and more conservative than that of two years ago. The results of treatments are being studied not only in terms of immediate improvement, but in the duration of that improvement. In addition, the method by which the treatments act is being looked into, and possible deleterious effects on the patient are being considered.

The study of cases promoted by these methods has brought about a general recognition of variations in diagnostic criteria that we have been using, and has resulted in efforts to standardize our diagnosis more completely. Likewise, standardization of statistical terminology is coming about, more especially, studies in prognosis are giving us a great deal of light on the outcome of cases, and is showing us, at least many of us, that the results of the older treatments have been better than we realized. Through the use of insulin and metrazol a tendency towards the development of other methods of treatment has already appeared. Nitrogen inhalations based upon the theory that insulin acts through reducing the oxygen supply of the brain, have been tried, as Dr. May has mentioned. Likewise, electrical shock has been tried, and no doubt other treatments will be developed in the future which may, or may not be more useful than insulin and metrazol. The efforts to standardize the diagnostic criteria, and the studies in prognosis will give us a far better understanding of schizophrenia and dementia precox, and will probably cause at least some of us to change our ideas to a considerable extent. I find that my own, especially in regard to prognosis, have already been affected. So, aside from any immediate direct benefits to the patient resulting from the use of insulin and metrazol, the indirect benefits which will come from the more thorough studies, and the better understanding of the conditions, will justify the treatments.

o

X-RAY TREATMENT OF SUBACROMIAL BURSITIS*

OSCAR O. JONES, M. D.†
SHREVEPORT

I claim no originality for what this paper may represent. I am quoting freely from an article in The American Journal of Roentgenology and Radium Therapy by Isidore Lattman, July, 1936, of the Radiologic Clinic of Groover, Christie and Merritt, Washington, D. C. I wish, however, to add my experience in the treatment of a few cases of subacromial bursitis in accordance with the technic laid down by Doctor Lattman. I am therefore not attempting to bring you anything new in anatomy of the shoulder joint but perhaps to refresh our memory a little would not be amiss and in doing so I think we had better be reminded of Codman's original description of subacromial bursitis in 1908 in DaCosta's surgery. This points out that the deltoid and subacromial bursa is one and the same thing, in that when the arm is abducted the entire bursa is subacromial; when it is adducted a large portion of the bursa is subdeltoid. Codman stated that "it is not too much to assume that this bursa, like any other bursa, in response to the insult of trauma, overuse, unaccustomed uses, following severe treatments or operation in that region, or infection, may become inflamed; may become overdistended with fluids; may be filled with fibrinous exudate; or its contiguous surfaces may become adherent."

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

†From the Tri-state Hospital and Willis-Knighton Clinic, Shreveport.

Since his original paper Codman has published numerous communications on this subject and others have also contributed to its literature. There are those who believe that the symptoms usually ascribed to subacromial bursitis are really due to disease in the sheath of the tendons attached to the greater tuberosity of the humerus rather than to disease of the bursa itself; Codman in some of his later papers (1912) concurs in the former belief. Ross Golden states that in his experience the calcification occurs in the supraspinatus tendon. He quotes Codman as confirming it in the tendon and noting a calcified putty-like material composed of 20 per cent calcium carbonate and 80 per cent calcium phosphate and further that the close proximity of the tendon to the bursa has led to the expression—"subdeltoid or subacromial bursitis." These deposits vary in size up to ¾ centimeters in diameter and are often oblong when large. Golden also quotes the material as being composed microscopically of calcium imbedded directly in fibrous connective tissue and in part surrounded by a leukocytic infiltrate, several fields contained fibrocartilage and osteoid tissue.

ETIOLOGY

The cause is obscure, many suggestions have been attributed but none definitely proved. Trauma has been given as an important cause but experience does not very well substantiate this; however, it may be a contributing factor. Strain or trauma, overuse or unaccustomed uses, irritation from occupation, foci of infection, and infection of the bursa proper have been suggested. Endocrine and metabolic disturbances have been mentioned (parathyroid). It appears evident that there are no definite etiologic factors that can be accused with certainty.

PATHOLOGIC ANATOMY

Codman divides the disease into three stages: (1) Acute or spastic; (2) subacute or adherent; (3) chronic. There seems to be no definite line of demarcation between the subacute and chronic stages; they apparently merge into one another. If there has been an acute attack which has subsided and a second attack with the same symptoms on the same side, occurring within two to four weeks this may be called subacute. Although the attack shows all the symptoms of the acute stage it is not usually as severe. Codman's conception of the disease is that during this stage adhesions form in the bursa between the roof and the floor. Many authorities believe the bursa does not even enter into the reaction but rather that the disease is due to a lesion in the supraspinatus tendon and not in the bursa proper. There seems to be no unanimity of opinion on the pathology of this disease.

SYMPTOMS

The symptoms vary with different patients. The clinical picture is much the same whether or not calcareous deposits are present; the chief symptoms are pain in the shoulder joint, of varying degrees of severity radiating to the neck, arm, forearm and even to the finger tips. Limitation of motion in varying degrees, posterior and external movements of the arm are markedly restricted. The point of exquisite tenderness is usually in the region of the greater tuberosity of the humerus and downward to the finger tips or upward to the edge of the acromion process. In the patients that I have seen, elevation of the arm was very painful also. The symptoms of the chronic stage are much the same as the acute and subacute, only much less severe and respond less favorably to any form of treatment. They are usually of much longer duration when the patient consults the physician.

DIFFERENTIAL DIAGNOSIS

Subacromial bursitis is the most common ailment of the shoulder but must be differentiated from other conditions occurring in this area. If the history is one of trauma, fracture and dislocation must be ruled out. This can be done by careful history, physical examination and x-ray. Tuberculosis, syphilis, cystic bone lesion, giant cell tumor, osteomyelitis, malignancy and other conditions might be mentioned which have to be ruled out. All these may be ruled out by the same procedures. In some instances both shoulders should be rayed for comparative purposes.

TREATMENT

Many forms of therapy have been used with more or less success. Rest and immobilization will often bring about a relief of symptoms in from six to eight weeks, with analgesics and opiates, if necessary, to carry the patient over the acute stage. A small per cent will go into the acute or chronic stage and the symptoms may subside and recur over and over again. Many surgeons and orthopedists who have written on this subject recommend non-operative treatment even when calcareous deposits are found. Operations are resorted to only in cases where other forms of therapy have been tried for months and have failed, and where the symptoms, particularly pain and limitation of motion, persist and the patient is incapacitated. Various forms of heat, including diathermy, have been used, as well as galvanic and sinusoidal currents, manipulations, massage, passive and active motion. Seemingly it must be admitted there is no specific form of treatment. Lattman has reported 20 cases of persons treated by roentgen irradiation to which I wish to add a few patients so treated according to the technic laid down by him. The experience I have had with patients so treated compares well with his experience. Anything that will relieve them of pain in a short time is worth considering in that the patients can be restored to their routine. The economic factor is also of great importance. Lattman states that it has been his experience for roentgen therapy to relieve the pain in the affected joint, thus permitting the patient to resume his normal routine more quickly than can be accomplished by any other form of treatment; my experience has been likewise, though not quite the number of patients treated and observation not as long.

Lattman states he treated patients as early as 1924 with beneficial results and since that time feels that experience has been sufficient to establish the value of this method of treatment in that he has had opportunity to treat a series of cases with physical therapeutic methods such as conductive and convective heat, diathermy, massage, manipulation, active and passive motion, as well as a series with roentgen therapy and finds the latter by far the method of choice and reports 20 patients so treated all of whom showed definite calcification; 14 of these had one treatment of 350 roentgens; four had two treatments and two had three treatments. Fifty per cent were male and 50 per cent were female. The average age was 46.3 years; the youngest 25, the oldest 72 years. Patients were examined two months after treatment and in three cases the calcification had disappeared. This of course may occur without treatment of any kind.

I have treated at the Willis-Knighton Clinic and Tri-State Hospital a series of 14 patients since March 25, 1938. The youngest was 30, the oldest 69 years; an average age of approximately 45. Six were males, eight were females; one of the cases was that of a female who had involvement of the elbow. I have had the opportunity to reray but one of my cases, 90 days after he had one treatment; the calcification had practically disappeared. The treatment was given May 17, 1938. He has had no further trouble but returned September 24, 1939 with a calcified bursa in the other shoulder which was given one treatment and he has had no further trouble.

Within the past 30 days I have contacted all patients treated, all reported no further trouble. Five of my patients had one treatment, six had two treatments and two had three treatments. One patient, a female 32 years old, had six treatments: March 25, April 13, and 28, 1938; she was relieved until November 7, when pain returned, she was treated that date and on November 13 and 27; she has had no further trouble. When first seen her shoulder showed considerable redness and swelling and was so painful to movement she carried her arm in a sling. The calcification in this bursa was very dense and the outline was rough.

The factors used in these treatments were as set forth by Lattman and were as follows: 200 peak kilovolts; 0.25 mm. of copper; 1 mm. of aluminum; field 20 x 20 cm; distance 50 cm; 350 roentgen units were given at each treatment. For the first 24 hours following treatment all patients complained of increased pain and aggravated symptoms but after about 40 to 48 hours their symptoms were much better. Lattman reports in his cases practically the same.

CONCLUSION

Roentgen irradiation of subacromial bursitis seems to justify the belief that this form of therapy will relieve the pain and restore function quicker than other methods of treatment. Lattman, at the time of his report, had been able to follow up his cases from one to five years and states that all have been relieved.

DISCUSSION

Dr. R. W. Cooper (Shreveport): Calcifications in and around the shoulder joints and other joints of the body have been described by many authors by almost as many names. Subacromial bursitis, or Codman's shoulder has been the most common one and is usually accepted. Other authors have called it peri-articular calcification, bursitis calculosa, bursitis calcarea, and peritendinitis calcarea. The clinical condition described by Duplay in 1870 and called peri-arthrite scapulo-humerale, or Duplay's disease, is thought by some to be identical with subacromial bursitis. Lattman gives Codman credit for the first clinical description of the condition in this country, for he has written most extensively on the subject. However, Carl Sandstrom of Stockholm, Sweden, said Painter of Boston was the first to describe the calcifications noted in roentgenograms of the shoulder. At the Fifth International Congress of Radiology, Sandstrom presented a very excellent paper, reporting 321 cases of calcifications. Some 259 cases showed involvement of one or both shoulders, 48 the hip joint, six the elbow, five the knee, six the fingers, three the toes, and two the wrist. He recognizes this condition as a clinical entity in itself, and says that it is a common disease of middle life frequently affecting the shoulder, but not infrequently affecting the hip and other joints. However, he chooses to call it peritendinitis calcarea, and did so in 1929 in his original publication. On microscopic examination of thirteen of these cases, some at autopsy, some from excision, he shows definitely that the calcification is not within the bursa, but in tendons, and sometimes in the wall of the bursa, but in no single case did he find calcification in the bursa itself. So he calls the disease peritendinitis calcarea, which I think is a good name. Other findings he showed were necrosis, narrowing of the lumen of the blood vessel, and he feels that calcification is quite probably secondary to local anemia resulting from the narrowing of the lumen of the blood vessels. With regard to etiology, some authors think infection is a factor, others insist that chronic trauma together with a disturbance in the calcium metabolism are causative factors.

I wish to compliment Dr. Jones on his excellent resume on the subject of subacromial bursitis and the presentation of his case. He follows Lattman's technic, giving a total of 350 r at the treatment, and occasionally three doses. Sandstrom prefers a fractionated technic. In the acute cases he gives 100 r two to three times weekly for six to eight doses. In my own limited experience I have followed his technic. The smaller doses do not cause the severe reaction in and around the joint as sometimes follows the larger single dose. I do not think there is a necessity for any one type of technic for it seems that good results are obtained in most cases where x-ray therapy of any kind has been used. It has been definitely established that x-ray therapy has been very efficient in relieving the symptoms and causing reabsorption of the calcium deposits; and I am convinced that it should be the method of choice in treating this condition.

Dr. Stakely Hatchette (Lake Charles): Dr. Jones has emphasized a non-surgical form of treatment for subacromial bursitis that may not be familiar to all of you here but which gives the patient complete relief. It is done without subjecting the patient to an anesthetic, an operation, without loss of time from the patient's occupation, and is as rapid as surgery in restoring useful function and freedom from pain to the patient's shoulder.

Until comparatively recently, all such patients in and around Lake Charles have been treated by surgical removal of these calcified bursae. However, in the past three years I have treated a few and, while I have not had quite as many as Dr. Jones, none of my patients have had pain longer than ten days after the beginning of treatment, and complete restoration of function of the shoulder and arm was accomplished in that time. While the calcifications in the bursae have not disappeared in all of my cases, every one of my patients has had 100 per cent relief from pain.

FRACTURES OF THE HEAD OF THE RADIUS*

JOHN T. O'FERRALL, M. D.
NEW ORLEANS

Fracture of the head and neck of the radius is regarded as an important subject to call to your attention and to invite your discussion, because of the frequent unrecognized and untreated cases encountered. Such fractures comprise from 15 to 20 per cent of fractures of the elbow and rank third in point of frequency of elbow injuries.

ANATOMY

A brief discussion of the anatomy of the head and neck of the radius may be in order. The radial head is an imperfect mushroom in shape with a moderate depression in the upper surface for its articulation with the capitellum. A circular ridge below the depressed upper half articulates with the lesser sigmoid cavity of the ulna. The entire head is, of course, entirely covered with articular cartilage, and in early life is almost wholly cartilage. Its epiphysis consequently greatly resists injury. Consolidation of this epiphysis occurs later than most of the long bones, taking place as late as 15 to 16 years of age. The neck of the radius, or stem of the mushroom, is about one inch long and is cylindrical in shape. The head and neck of the radius are held in place against the lesser sigmoid cavity of the ulna by the orbicular ligament which encircles the head and neck. The rupture of this ligament often occurs in fractures of the head of the radius and may alone be the cause of limited motion of the forearm, supination and pronation, because of strong adhesions.

FREQUENCY OF OCCURRENCE

Fracture of the neck and head of the radius is most frequent in early adult life. It may occur in childhood fairly frequently, but often there is an epiphyseal injury and it is seldom comminuted. It is about equally distributed between males and females. Its occurrence may be as the result of either indirect or direct violence; in the former the force is transmitted along the shaft of the radius to the head, driving it against the external condyle or capitellum. Usually, the weight of the patient is caught upon the outstretched arm with the hand pronated. The latter or direct violence occurs less frequently and is represented by a blow upon the lateral aspect of the elbow.

Frequently, fracture of the radial head is associated with some other bone injury, but here my remarks are limited to isolated fracture of the radial head and neck. A variety of this type of fracture is seen, from partial or incomplete, to severe comminution, or complete separation of the head from the neck.

SYMPTOMS

The symptoms, though variable, are often quite characteristic. The forearm is held in semiflexion and pronation; attempted pronation and supination are painful, crepitation is rarely felt over the lateral aspect of the elbow corresponding to the head of the radius; swelling may or may not be seen over the involved area, except in those cases resulting from direct violence, when it is generally present. When palpation of the head of the radius elicits marked tenderness, with or without crepitation, and supination of the forearm is limited and painful, diagnosis of injury to the radial head is fairly certain. X-rays showing good detail and made in several planes, anterior, posterior, lateral and oblique, are necessary to confirm the diagnosis. Emphasis is laid upon clear x-rays in several planes, particularly in cases occurring in children, when the epiphysis of the head of the radius is damaged. Often, a very small part of the cartilaginous epiphysis is involved. It has been suggested that separation of a small part of the cartilaginous epiphysis may become a loose body in the joint and play the role of a "joint mouse" at a later time. Fortunately, epiphyseal separation is rare. Wilson reports three cases in a series of 78 cases. Typical cases of fracture most often occur in children instead of the epiphyseal separations.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

TREATMENT

Improper and indifferent treatment of the fractures of the head of the radius may result in serious impairment of the function of the elbow. This loss of function is not confined to the loss of pronation and supination only but frequently involves flexion and extension as well. In the simpler cases, such as partial fracture of the radial head; incomplete fracture of the head or neck, impacted fracture of the head without comminution; and damage to the epiphyseal cartilage without displacement, accurate diagnosis suggests the treatment. The forearm should be gently supinated and the elbow fully flexed, namely, the position which has become known as the Smith-Jones position. This position is often comfortably retained by a strap of adhesive plaster around the flexed extremity well above the elbow and a loop of unbleached bandage about the wrist and tied behind the neck. This dressing permits local application of heat or cold and does not interfere with posttraumatic swelling. The flexure of the elbow should be protected from the maceration which so often results from the intimate contact of the skin surfaces, by inserting gauze, sheet wadding and powder. This fully flexed position should be maintained for a period of three to four weeks. Gentle motion of the joint and forearm, however, should be started after about one week, the arm being returned to its original position each time after gentle active and passive exercise. As progress is made in restoring function, heat and massage, with muscle training, are indicated. With such careful handling, end results are satisfactory and normal function is usually restored. A mistake often practiced is the use of force in hastening motion. The joint structures resent the trauma produced by force, and insult is added to the already existing injury. As swelling, tenderness and pain subside, the position of full flexion can be lessened so long as the patient can actively return to the original fully flexed position. This is the criterion for permitting progressively increased activity.

The more serious types of fracture of the radial head include those in which a single fragment is displaced and comprises more than half of the lateral aspect of the radial head; severe comminution of the head in which several fragments are displaced; fracture through the neck of the radius with displacement of the head and separation of the upper epiphysis of the radius with displacement of same. These types of fractures require operative measures as the method of choice for the attainment of good functional results. Early operation is desirable. It has been found that those patients subjected to operation within the first few days after injury offer the best opportunity for good postoperative function.

OPERATIVE PROCEDURE

There are two operative approaches to the head of the radius, but the postero-lateral incision is preferable as it more easily exposes the head and neck of the bone. This incision is made over the radio-humeral joint, beginning just above the capitellum and extending to a point about one inch below the head of the radius. The small posterior interosseous nerve is identified between the heads of the supinator brevis and is the most important structure to be encountered. It is retracted downward and the head of the radius exposed through the capsular ligament and capsule. If the lateral half of the radial head is displaced, it should be removed, leaving the mesial half to articulate with the sigmoid cavity of the ulna. If more than half of the head is displaced, then the entire radial head should be resected. If comminution of the head has occurred, then all comminuted fragments should be removed. It will often be found that small fragments have been displaced into the flexure of the elbow and in fact throughout the joint cavity. Careful search for all fragments is necessary before closing the wound. In children the displaced epiphysis may be replaced onto the head of the bone and be made to remain in place by careful closure of the wound and fixation in the fully flexed, supinated position. If the orbicular ligament, holding the radius in apposition to the ulna, is found damaged, same should be repaired. Careful hemostasis is essential to avoid additional opportunity for fibrosis and consequent limited motion. After the usual closure of the wound, the position of full flexion and supination seems desirable and is best maintained by means of a light plaster of Paris posterior splint and a Jones loop about the neck. Early motion, one week to ten days, followed by gentle, gradually developed motion, as described for the simpler types of fractures of the head and neck of the radius, is carried out. Good functional results have rewarded many patients and surgeons for their patience and painstaking after care of such injuries. It can be safely said that the end results in such fractures are in direct ratio to the scientific care given them.

SUMMARY

1. Fracture of the head or neck of the radius is a serious injury and requires careful diagnosis and painstaking treatment.

2. Conservatism is indicated in the simpler types of fracture in which fragments have not been displaced.

3. Early and complete operative removal of displaced fragments is most desirable and offers better opportunity for good function. This is also true in epiphyseal separations.

4. Very careful hemostasis is essential and avoidance of injury to the interosseous nerve must be observed.

5. Personal supervision should be given to the physical therapy and same should be initiated no later than one week to ten days after conservative or operative treatment is started.

6. The Smith-Jones, or fully flexed supinated, position is desirable to maintain satisfactory position of fragments and to avoid limited motion.

CASE NO. 1, ELEVATOR OPERATOR

On November 12, 1938, he was struck on the right elbow by the fender of a passing automobile. Has suffered severe pain but considered the injury a bruise and did not report to his physician for two days, who then referred patient for treatment. X-rays showed a comminuted fracture of the head of the radius with considerable displacement of the fragments. Operated on November 15, by posterolateral incision; removal of all fragments; no further pain. After physiotherapy, was discharged for duty December 30, 1938. Six weeks' disability.

CASE NO. 2, MUSIC TEACHER

On November 5, 1935, was thrown from a horse, injuring the right elbow. She consulted her family physician, who referred her for treatment. X-ray showed the head of the radius severed from the shaft and comminuted, the fragments considerably displaced. Operated on November 7, 1935, by postero-lateral incision; slight postoperative pain. Physiotherapy. She was discharged for duty December 13, 1935, after five weeks' disability.

CASE NO. 3, TEACHER

While going downstairs April 8, 1938, she slipped and fell headlong, injuring her right elbow. She was seen by her physician, who applied a temporary splint. X-ray showed fracture of the radial head wth two fragments displaced forward and apparently in the flexure of the elbow. Operated on April 9, 1938, postero-lateral incision; all fragments removed; no postoperative pain. Physiotherapy. Discharged for duty June 6, 1938, slightly less than two months' disability.

CASE NO. 4, CHILD

On December 4, 1928, she fell down the steps, twisted her arm and struck the elbow against the steps. There was immediate, severe pain in elbow joint. X-ray Baptist Hospital showed chipped fracture head of radius (left), no displacement. Fixation in Smith-Jones position. Heat and active motion begun in slightly less than one week; rapid return of function. Discharged for duty in two weeks; no residuals.

DISCUSSION

Dr. W. Rogers Brewster (New Orleans): Very frequently, a subject of this kind, in which the treatment is more or less recognized as being rather clearly delineated, does not come to our attention sufficiently often, and it is good to refresh our memories at times. What Dr. O'Ferrall has said covered the subject in so far as treatment is concerned, and the only thing of importance which might be stressed a little more is the problem of recognition of these fractures. As Dr. O'Ferrall said, this depends largely on certain symptoms in combination with adequate and proper x-ray. It should be always borne in mind in relation to injuries around, or in the elbow, and there is one particular injury which I have seen occur and in which the associated fracture of the head of the radius, or displacement of the head, has been missed, and that is those fractures of the upper and middle third of the ulna with displacement. Displacement of the head of the radius associated with that type of injury should always be considered as being present until proved otherwise.

Dr. George C. Battalora (New Orleans): Dr. O'Ferrall has admirably covered the subject of fractures of the head of the radius. There are a few points that I would like to stress. First, the time of operating on these patients is extremely important. The decision for operating should be made early. We should not let the case drag along through a period of doubtful conservative treatment and then decide to operate. We are not going to get as good results as if we did the operative procedure early.

The age of the patient has a great deal to do with the type of operation to be done. In young individuals, we rarely see the comminuted types of fractures as in adults. If an operation is necessary, we should do an open reduction; in older persons, we should excise the head. We would not want to excise the head of the radius in a child. I had one case in which I excised the head in a young girl. She developed a marked increase in the carrying angle and a late ulna nerve paralysis. This latter condition was corrected by an anterior transposition of the nerve.

Another point arises in cases where we must decide either on a partial or complete excision of the head. It is better to excise the entire head, for if a partial excision is done there is great likelihood of development of arthritic changes between the remaining portion of the head of the radius and the capitellum.

Dr. H. D. Morris (New Orleans): I would like to call attention to the approach popularized by Dr. Boyd, of the Campbell Clinic, for excision of the head of the radius. Dr. O'Ferrall mentioned various approaches now in use, and the approach which Dr. Boyd presented in the Orthopedic Section of the American Medical Association last June is a posterior approach over the lateral condyle of the humerus. Incision is carried along the upper third of the ulna and the supinator is reflected subperiosteally, carrying the interosseous branch of the radial nerve anteriorly, completely out of arm's way, and in complicated fractures where the upper third of the ulna is fractured, it allows access to this fracture.

The other thing I would like to mention is radial deviation of the hand following excision of the radial head. This complication was emphasized by the recent publication from the New York Orthopedic Hospital. They recommended purse-stringing the tissue between the capitellum and the radial shaft and immobilizing the hand in ulnar deviation to prevent this complication. I wonder if Dr. O'Ferrall has met this complication in his series of cases.

Dr. John T. O'Ferrall (In closing): I mentioned in my paper that attempt should be made to replace the epiphysis on the end of the bone and the arm fixed in the Smith-Jones position.

With reference to removal of part of the head, I tried to emphasize the fact that if more than half of the radial head was displaced, then the radial head should be removed. If the mesial aspect, or more than half is displaced, it should be removed. The remaining mesial head can articulate with the sigmoid cavity.

I appreciate Dr. Morris' remarks with reference to the new approach to the elbow with which I am not familiar.

ENCEPHALOGRAPHY AND THE NEUROPSYCHIATRIST*

DEAN H. ECHOLS, M. D.†
NEW ORLEANS

Encephalography is a diagnostic method for roentgenographic visualization of the brain in which cerebrospinal fluid is replaced by air through the lumbar route. Briefly, the procedure consists of: Spinal puncture with the patient in the sitting position; withdrawal of three to six ounces of cerebrospinal fluid and replacement by injection of an approximately equal amount of air or other gas; and roentgenography of the head with the patient lying or sitting in various positions. This permits adequate visualization of the entire ventricular system and the subarachnoid spaces over the surface of the brain.

Encephalography probably should be considered the fifth most important diagnostic procedure available to the neuropsychiatrist, the first four being history taking, observation of the patient, neurologic examination and spinal puncture. If this assumption is true, one would be justified in concluding that encephalography is in common use. On the contrary, in most hospitals in this country encephalography is practically never employed. It is not my purpose to criticize the neuropsychiatrists as a group for their ultra-conservative attitude regarding roentgen ray examination of the brain, because the explanation for their hesitancy in accepting this as an aid in diagnosing obscure brain lesions is easily understood. Not only is the procedure exceedingly painful, but in certain diseases it is also dangerous. Moreover, the idea of spinal fluid replacement by air is a relatively recent one, being first conceived by Dandy[1] in 1919. Since then, the technic has undergone minor modifications, so that it has been only within the last few years that the method and the indications for its use have been sufficiently standardized to warrant its use by all neuropsychiatrists. It is my purpose to outline a technic of encephalography, its indications and contraindications, and to encourage neuropsychiatrists as a group to adopt this procedure as a simple, safe and valuable diagnostic measure.

---

* Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

† From the Division of Neurosurgery, Tulane University of Louisiana, School of Medicine.

INDICATIONS

Encephalography should not be used instead of, but as an adjunct to, painstaking neurologic or psychiatric examination. Since the use of this procedure can easily be abused, it should be considered only if the neuropsychiatrist has been unable to arrive at a specific diagnosis with the other methods at his disposal. This statement intends not to minimize the value of this test, but instead, to encourage its use. Most writers[2, 3, 4] agree that encephalography is indicated in all cases in which symptoms of obscure brain lesions are manifested if there is no evidence of increased intracranial pressure. It is obvious enough that if a clinical diagnosis of brain tumor, brain abscess or intracranial hematoma can be made, there is no reason for the performance of encephalography except at the election of the neurosurgeon. In the presence of an intracranial mass, ventriculography, that is, the injection of air directly into the ventricles through a trephine, is a safer procedure.

It is my opinion that all patients suffering from epileptic attacks which do not cease under adequate therapy should be subjected to encephalography. Incidentally, in this particular disturbance, air injection sometimes has a therapeutic effect. Grant[5] and many others believe that the results obtained in epileptic patients subjected to encephalography are beneficial though transitory.

Other applications of this procedure are in patients with obscure mental diseases including character and personality changes as well as bizarre psychoses, severe intractable headache, congenital brain defects, inflammatory or degenerative lesions of the cerebrum, and psychoneuroses. Many patients with posttraumatic encephalopathy should have encephalography for therapeutic and medicolegal reasons. Also, the time will probably come when patients with non-classified psychoses will not be permanently committed to psychopathic hospitals until after an encephalogram has been made. Spinal air injection should also be resorted to, for academic reasons, in patients suffering from mental deficiency.

CONTRAINDICATIONS

It is generally agreed that encephalography is contraindicated in all cases where intracranial pressure is greatly increased, such as in the presence of intracranial tumor, abscess or hematoma. The reason for this is that lumbar puncture in such patients might cause further compression of the blood supply of the medulla oblongata. Only at the discretion of the neurosurgeon should encephalography be employed in the patient with choked discs. Encephalography should ordinarily be avoided in patients over fifty years of age[6]. Infants tolerate the procedure well.

TECHNIC

Because encephalography causes severe pain in the neck and head, often accompanied by nausea and vomiting, it is desirable to stop the intake of fluids or solids eight hours before performing the test. Three grains of pentobarbital sodium (nembutal) may be given a few hours before starting the procedure. Just prior to spinal puncture the administration of 1/100 grain of atropine sulfate will assist in decreasing the unpleasant symptoms.[7] Whereas it is much simpler to perform encephalography without general anesthesia, children and uncooperative adults should be put to sleep.

Numerous variations in technic have been suggested, but the procedure can be performed with utmost simplicity. The patient walks to the treatment or roentgen ray room, where the test is done. He is asked to sit astride an ordinary straight back chair, which is placed at the head of a table on which he rests his folded arms and head. The back is exposed and cleaned with antiseptic solution. After the skin has been anesthetized with novocaine, a spinal puncture is performed in the third or fourth lumbar interspace using an 18 gauge needle. A three inch piece of rubber tubing is attached to the needle after the stilet has been withdrawn. The escaping fluid is caught in a one ounce medicine glass by an assistant. After the liberation of approximately 10 cubic centimeters of fluid, 10 cubic centimeters of air, which has been aspirated into a syringe through a piece of sterile gauze, is injected through the rubber tubing. This procedure is continued until 120 cubic centimeters of fluid, in the average case, have been replaced by an equal amount of air. The spinal needle is removed and the patient is put on a stretcher. The roentgen ray films should be made within an hour. If the standard table is used with the roentgen ray tube overhead, the patient lies on his back for an anteroposterior projection. The patient then lies in the prone position for a postero-anterior view. With the patient still in the prone position, lying first on one cheek and then on the other, lateral views are made. It is desirable to make stereoscopic films. In some hospitals the films are made with the patient sitting up with the head against a vertical Potter-Bucky diaphragm. Since each method has its advantages, the ideal procedure would be to make films with the patient both lying down and sitting up.[2]

REACTION TO AIR INJECTION

As soon as the air reaches the cervical region and cisterna magna, the patient suffers severe neck pain and headache. With the continuance of the procedure, the patient may perspire profusely, and there may be nausea and retching. Fainting rarely occurs. Upon returning to bed, the patient wants to lie quietly for from 12 to 48 hours, as pain is aggravated by movement of the head. Codeine and aspirin usually suffice for analgesia. Fluids and solids can be given when requested, and the patient may leave the hospital as soon as he desires. The average stay is about three days, even though a little air is still present in the head at the end of this period.

Probably one of the reasons that encephalography has not enjoyed greater favor among neuropsychiatrists is the belief that it frequently results in death. There is no basis for the existence of this opinion. If a patient does not have a serious brain disease such as tumor, aneurysm or advanced arteriosclerosis, the risk is practically negligible. Pancoast and Fay[3] found that the mortality, following encephalography in a series of 1,529 cases collected from the literature from 1921 to 1928, was 1.2 per cent. In Davidoff and Dyke's series of 4,000 encephalograms the mortality was only 0.22 per cent. Grant[5] had only one death in 325 cases.

CONCLUSION

It should be emphasized that because of its simplicity of performance, its negligible mortality and its adequate visualization of the brain, encephalography is strongly recommended as an important aid to neurologic diagnosis in obscure brain diseases.

REFERENCES

1. Dandy, W. E.: Roentgenography of the brain after the injection of air into the spinal canal, Ann. Surg., 70:397, 1919.

2. Davidoff, L. M., and Dyke, C. G.: The Normal Encephalogram, Lea & Febiger, Philadelphia, 1937.

3. Pancoast, H. K., and Fay, R.: Encephalography: Roentgenological and clinical considerations for its use. Am. J. Roentgenol. & Rad. Therap., 21:421, 1929.

4. Pendergrass, E. P.: Indications and contraindications of encephalography and ventriculography, J. A. M. A., 96:408, 1931.

5. Grant, F. C.: Ventriculography and encephalography, Arch. Neurol. & Psychiat., 27:1310, 1932.

6. Meredith, J. M.: A consideration of the value and indications for encephaloventriculography with especial reference to its use in borderline neurosurgical conditions, Surgery, 7:95, 1940.

7. Scott, M.: Prevention of usual symptoms following encephalography by the preliminary injection of atropine sulfate, J. A. M. A., 113:1125, 1939.

DISCUSSION

Dr. Gilbert C. Anderson (New Orleans): Dr. Echols has emphasized an important diagnostic procedure, which, as he says, is undoubtedly used much less frequently than it might or should be. I do not think the performance of encephalography requires any extended training, or any intricate machinery or apparatus or equipment of any sort. As far as the technical performance of the test is concerned it can be done by anyone capable of doing spinal puncture, who knows how to handle that sort of procedure. However, the interpretation of the filling requires experience.

Dr. Echols says the mortality is practically nil, but that, of course, depends to some extent, in this procedure as in any other, upon the selection of patients. There are only a few, relatively, speaking, in whom this procedure is contraindicated. Certainly, I should be very reluctant to make or attempt to make, an encephalogram on a patient with choked disc. If I, or the consultant, felt that we were dealing with a true choked disc that was the result of increase in intracranial pressure, I should be very loath to empty the subarachnoid space of its fluid, and I say this with regard to any condition in which increased intracranial pressure is present, especially in lesions of the posterior fossa in which we so often have been told spinal puncture is contraindicated. As a matter of fact, the deaths that have been reported by Dr. Moersch of The Mayo Clinic following spinal puncture, were in supratentorial lesions, and they considered the menace there was a prolapse or jamming the brain stem in the incisura of the tentorium rather than medullary prolapse. At any rate, where intracranial pressure is definitely increased, I would certainly prefer to carry out ventriculography, in which air is introduced into the ventricle by means of a trephine opening.

However this entails an operative procedure, a major operation, with scrupulous attention to surgical technic, and carries a definite mortality which is a little high for a procedure only diagnostic in value.

The difficulty in encephalograms in general is failure to get a filling of the ventricle with air. Unless the patients are prepared with sedatives and atropine, they are apt to have a fast pulse, disturbances in respiration, and sweat profusely on the table, and very often the blood pressure goes down and they vomit, but seldom lose consciousness. The operator may be inclined to stop when he has drained 80 to 90 c. c. of fluid and replaced it with air, and then get a filling. If the system is not well delineated, the interpretation will be difficult, and therefore, I think it is necessary to carry the procedure as far as possible and one will be surprised in many cases at the amount of fluid that can be withdrawn. Manipulation of the patient's head from side to side and forward and backward after apparent complete drainage often produces a surprising additional amount.

Dr. Roy Carl Young (Covington): Dr. Echols has given us a very clear concise view of the procedure known as encephalography. It is a procedure, as he stressed, of great value in neurologic diagnosis, one that in properly selected cases gives a value we get in no other way, a procedure that should not supplant the most careful neurologic examination, and when I say neurologic examination I include roentgenograms, spinal fluid studies, spinal fluid analyses, visual fields. It is a fitting procedure in neurologic diagnosis and has a definite therapeutic value as well as diagnostic value.

Its use is important in cases of epilepsy. I usually treated these patients over a period of time and if the person did not respond to treatment then I invariably advocated encephalography for diagnostic aid and therapeutic effect. It is of value in trauma of the head, in diagnosing the amount of injury and also because of its therapeutic effect. It certainly does decrease the symptoms of cortical irritability.

One very important phase of encephalography is close cooperation required between the radiologist and the neurologist as correct interpretation of your roentgenograms after they are made is very important.

Dr. H. Randolph Unsworth (New Orleans): It has been my good fortune to see some encephalographic work and I am also in agreement with Dr. Echols that in expert hands it is probably a harmless procedure. I doubt, however, that it is such an innocent procedure in incompetent hands. I have been impressed with the marvelous view the encephalogram gives, and further, as a diagnostic aid it has become, in my mind, indispensable in neurologic diagnosis. Therapeutically, I am not prepared to evaluate the method. I will say that it has appeared to be helpful in certain of the convulsive phenomena. It certainly brings to light structures in the cerebrum that apparently the ordinary x-ray plate does not reveal. This was very forcibly impressed recently. Dr. Echols did an encephalogram on a patient who had been treated for epilepsy for probably eight years. The encephalogram of that particular case was most enlightening and showed a tuberculoma. I am further of the opinion that in certain of the psychotics, certain of the encephalitics, therapeutically we may expect results that we have been unable to obtain in these patients.

NEW ORLEANS
Medical and Surgical Journal
Established 1844

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio
For one year: Lucien A. LeDoux, M. D., Vice-chairman.
H. W. Kostmayer, M. D.
Secretary
For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF

John H. Musser, M. D.........................*Editor-in-Chief*
Willard R. Wirth, M. D...*Editor*
Edwin L. Zander, M. D......................*Associate Editor*

COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....................*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE NEW YEAR

The new year starts with the world aflame. Grim war is reaping its toll in most of the so-called civilized countries of the world; nearly all Europe and most of Asia is afire. Only in the Western hemisphere is the horror of war a thing remote and distant but even oceans separating the United States from the two combat continents does not prevent our feeling the repercussions. The United States necessarily is preparing to defend itself should it become incriminated in a future struggle. All the preparation will have a profound influence on our economic and our professional life; taxes will be increased necessarily, funds will have to be raised to support a large army and the necessary armaments, professionally many doctors will be called into service and there will be doctors in civil life who will have to work over time who will be called to perform extra duties and who will be employed continuously in their professional occupations.

All this preceding paragraph seems pessimistic. However, we have much to look forward to in the coming year. After all, our families are intact, our work is interesting and our pleasures, few though they may be, are a relaxation and a joy. Grossly the coming year seems appalling; minutely to the individual, happiness and comfort will probably be his lot in the coming year. We sincerely hope so. To all of our readers the Journal offers felicitations and the hope that the coming year will be a prosperous and happy one.

MENVILLE HONORED

The Journal is filled with pride at the realization that the Chairman of the Committee under whose auspices it is conducted, has again been signally honored. Dr. Leon J. Menville was selected as president of the Radiological Society of North America at its annual meeting which was held the first of December in Cleveland. This is an honor which is outstanding. This radiologic society is composed of the leaders in roentgenology in the United States. The selection of Dr. Menville indicates that he is well liked personally, that the members have a high regard for his accomplishments in roentgenology and that they have faith in his ability as an executive.

Not only should the Journal feel proud of this honor conferred on its Chairman but the members of the Louisiana State Medical Society should likewise take vicarious pleasure in having one of their former presidents of the State Medical Society elected to this outstanding office. It is just further proof that doctors of Louisiana are among the best in the country and that the appreciation of their professional skill is widespread. We medical men of the State wish our distinguished confrere every success in his administration of this great radiologic organization.

THE GRADUATE MEDICAL ASSEMBLY

The growth of the New Orleans Graduate Medical Assembly has been truly spectacular. Starting in a small way four years ago it has increased its attendance by leaps and bounds and it has apparently appealed to a very large number of men, not only throughout the South but also from the North and Midwest. This is a very practical demonstration that the medical man is anxious and eager to keep up with the advances in medicine and to review the latest and most outstanding features in his professional field.

The meeting which will be held March 3-6, 1941, should be the largest one that has ever been conducted. This is said advisedly because the list of guest speakers is outstanding and the character of the presentations that these speakers will make is guaranteed by their professional reputations. It would be impossible to enumerate here the names of the eighteen outstanding essayists. Men like Paul D. White, Paul A. O'Leary, Owen H. Wangensteen, Ernest E. Irons, Maurice Pincoffs, Charles F. McKhann and Cecil S. O'Brien are known not only locally but nationally. Only a few of the guest speakers have been mentioned but the others are equally well known and prominent in medical circles.

The thinking medical man will realize and appreciate that this medical assembly will give him an excellent opportunity to find out about the advances in medicine and surgery; it will give the hard working professional man an opportunity to relax from the daily grind and it will give the doctor whose contact with other members of his profession is limited an opportunity of talking over his problems with his fellow practitioner and with men who are known as teachers and scientists. The small registration fee includes not only the lectures but also the round-table luncheons, the smoker, the scientific exhibit and many other features. It will be money well spent.

HEART DISEASE AND OPERATIONS

Very often the practitioner and the surgeon are confronted with the problem of a patient who has organic heart disease and who requires an operation, which operation may be an immediate necessity or may be an operation of choice. Most physicians know that there are innumerable operations that are delayed or not performed because of fear of the patient or by the doctor. Some years ago Marvin[1] wrote "For purposes of anesthesia and operation a heart that is damaged but that is carrying on an adequate circulation under normal conditions of life is the equivalent of a normal heart." This implies a heart that is not in failure. Practically the only type of heart disease in early and mid-life which is dangerous is syphilitic heart disease with aortic insufficiency and angina pectoris in later life, largely because these two conditions may be associated at any time with sudden death.

Patients who are in failure do present a very definite risk, but the surgical mortality in a large group of carefully studied cases was only 5.5 per cent. These people, however, were given bed rest, when possible, for at least three weeks after their failure had taken place. Decompensation must be considered a bar to selective operation and must be properly taken care of in necessary emergency operations.

Patients who have healed myocardial infarction, or angina pectoris, on the whole do not present any very great difficulty, according to Blumgart.[2] Again in a large series of patients, 257, recently reported with coronary arteriosclerosis, the death rate was only 4.3 per cent after or during operation. However, it must be borne in mind that whenever possible an occlusion must have at least a period of three months to heal before operation should be considered. Coronary thrombosis occurs after operation in older people in a considerable number of patients and this possibility should always be considered because of the fact that shock, dehydration and hemorrhage may precipitate an attack of coronary thrombosis. This is a frequent occurrence in the arteriosclerotic diabetic patient. There is always danger, incidentally, of a hypoglycemia precipitating an infarction so that insulin should be used cautiously and the blood sugar watched carefully.

---

[1] Marvin, H. M.: The heart during anesthesia and operative procedures, New England J. M., 199:547, 1928.

[2] Blumgart, Herrman L.: Cardiology: I. The management of cardiac patients who require major surgery. II. The treatment of cardiac arrhythmias, New England J. M., 223:765, 1940.

Blumgart has some very excellent suggestions in regard to the preoperative and postoperative care of the heart patient. It is advisable to give small doses of barbiturates for a few days prior to operation, phenobarbital ½ grain three or four times daily. Small doses should be used rather than larger doses which may have an unfavorable synergistic action when morphine is given before operation, plus the anesthesia, which may cause trouble. He cautions against giving large quantities of saline solution by vein or hypodermoclysis, particularly to the patient who, before operation, has been on restricted salt and fluid intake. When fluids are given into the vein they should be given slowly, not more than 20 c. c. per minute, and of course in the presence of edema it would be wise to give glucose solution alone and not have it combined with saline. If it is given at this slow rate it has very little effect on the cardiovascular functions. Digitalis should only be employed when there is congestive heart failure or auricular fibrillation. Oxygen is an excellent prophylactic given after operation in those patients in whom the cardiac reserve is limited. Lastly, nitroglycerine in a patient who has had attacks of angina pectoris may be given 1/500 grain every half hour before operation and during the operation, if it is done under local anesthesia.

The reviewer also calls attention to the fact that drugs which are often used before and after operation may affect the heart unfavorably. Notable in this group are the pituitary gland preparations which may precipitate angina pectoris and collapse in an older patient. Adrenalin is distinctly contraindicated in people who have coronary arteriosclerosis. The use of carbon dioxide mixture is ill advised unless the amount given can be very carefully controlled. The physician should not forget that atropine has a breaking effect on the vagus and if it is given in fairly large doses to lessen bronchial and upper respiratory tract secretions it may produce an undue elevation of the heart rate, particularly dangerous in patients with auricular fibrillation. Reference has already been made to the use of insulin and the production of hypoglycemia; cocaine and novocain are also drugs which should be used with extreme caution in patients with coronary arteriosclerotic disease. Because they are readily and rapidly absorbed they may cause cardiac arrhythmias and at times ventricular fibrillation and death.

Boiled down to a few words, this review of Blumgart definitely suggests that the young person with heart lesions is an excellent operative risk. The old person with arteriosclerosis of the coronary vessels is, on the whole, a subject who must, during operation, before operation and after operation, be observed and watched most critically but on the whole old people can go through operations with a surprisingly satisfactory degree of safety.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TOURO INFIRMARY

New Orleans

A meeting of the Medical Staff of Touro Infirmary was held on October 9, 1940. Dr. Walter E. Levy read the Memorial Resolution to Dr. John A. Lanford, as set forth by the Executive Committee.

The Chairman next reported on the Liaison Committee and its membership.

A Clinico-Pathologic Conference was held, at which a case of diabetes was reported by Dr. Sydney Jacobs. Abstract of case follows:

A. B. R., a 33 year old female known for nine years to be a diabetic, was admitted September 5, 1940, apparently suffering from a cold of one week's duration. There had always been trouble in stabilization; she was taking 40 units of regular insulin daily until two days prior to admission when nausea and vomiting began. Her blood CO_2 was 22, but there was no acetonuria. She was treated for diabetic acidosis with infusions and insulin and had apparently recovered from this by the sixth day when her blood CO_2 was 54. Persistent unexplained low grade fever was followed on the fifth day by jaundice, the icterus index gradually rising to 100 by the tenth day. At this time with definite evidence of complete obstructive jaundice, no organic intestinal tract obstruction was visualized. Ascites, dependent edema and pleural effusion developed rapidly; the serum protein was 3.94 and the blood amylase was reported as low. The prothrombin time was markedly elevated until vitamin K was given. Albumin and bile gradually increased in the urine, but the N. P. N. was only 25. She had completely recovered from diabetic acidosis (dextrose 95, chloride 515, CO_2 61) when death occurred on the twelfth hospital day. At postmortem, a most extensive acute necrosis of the liver was noted. The cause of the necrosis is undetermined; there was no known ingestion of any hepatotoxic substance or any history of infectious or metabolic disease to produce it. Possibly there may have been some connection between this and her markedly unstable diabetes, but this can not be proved.

The case was discussed by Dr. Willard R. Wirth. He remarked on the marked hepatitis and decrease in serum protein, with effusion. Dr. Nadler stated that the three most prominent phases of the case were the decrease in prothrombin; second, marked deficiency of serum protein, and third, acidosis.

The second case was presented by Dr. Emile Bloch—Cortical Cell Tumor of the Suprarenal Gland with Metastases to Both Lungs and Both Inguinal Regions. Abstract as follows:

J. B. S., a white male age 56, was first seen on August 30, 1940, complaining of a mass in the right iliac region, adjacent to the pubes with a history of loss of 20 pounds in two months, and anorexia. There was a right inguinal hernia adjacent to the mass. Several digital examinations of the prostate were negative. He was admitted to Touro Infirmary on August 31 with a temperature of 101°, and with a white blood count of 11,000. X-ray report: Area of increased density in pelvic bones, texture relatively normal. Somewhat suggestive of osteoblastic metastatic process, but does not warrant a definite diagnosis. X-ray showed no definite bone pathology. Biopsy of the tissue on September 2 was reported by the pathologist as lipofibroma. (Tissue not taken deep enough to show pathology.) On September 8, Dr. Edgar Burns, in consultation, gave a tentative diagnosis of granuloma inguinale. (Frei test negative.) He further advised excision of inguinal glands on both sides and mass on right side. On September 10, exploration of right inguinal region showed the mass extending deep into the inguinal canal; unable completely to remove same. Pathologic report of frozen section was squamous cell carcinoma, type IV. Further examination of tissue, paraffinized section, thought to be an endothelial tumor of Ewing's type. X-ray of all the bones of the lower extremities showed suspicious growth in the left femur. The operative wound was dressed daily and seemed to heal rapidly. The patient continued to go rapidly down-grade physically, and on September 21, he showed an extravasation of urine into the suprapubic region and scrotum. Therefore, Dr. Burns did a suprapubic cystotomy under local anesthesia with incisions into the scrotum and perineum.

Discussion by Drs. Eshleman and Teitelbaum.

At the conclusion of the Clinico-pathologic Conference, the presentation of papers was begun.

The first, a paper by Dr. Frank Loria, was not presented as he was absent.

The second paper was by Drs. Silverman and Katz, Use of Plasma in the Treatment of Some Gastrointestinal Diseases and Their Complications.

A. Presentation of two cases of chronic ulcerative colitis associated with bleeding and hypoproteinemic stages; and one case of acute gastric hemorrhage characterized by low blood volume and nutritional edema.

B. Preparation, administration, indications and limitations of citrated plasma.

1. Plasma is the cell-free layer of citrated whole blood.

2. It is useful in the treatment of hypoproteinemic states as is seen in gastrointestinal conditions such as protein starvation associated with administration of large amounts of crystalloid solutions; severe liver insufficiency; to replace low blood volume as is found in blood loss associated with hemorrhagic gastritis, bleeding gastric and duodenal ulcer, and ulcerative lesions of the large bowel, in addition to its place in the medical management of postoperative obstructions following gastric surgery.

3. Plasma is easily prepared and can be stored for indefinite periods.

4. It is immediately available without the necessity of cross agglutination.

5. Plasma from AB donors can be given in any amount; the same effect may be achieved by pooling various types of whole blood, adsorbing the agglutinins and aspirating the plasma.

6. Plasma does not replace whole blood; it is a logical adjuvant to the use of the latter achieving its supply from outdated blood.

7. Plasma may be transported for use at any distance while whole blood is subject to hemolysis due to mechanical agitation.

8. Plasma may be administered intramuscularly or subcutaneously as safely and effectively as physiologic saline.

The next presentation was by Drs. Kennedy and Howles, Sarcoidosis in the Negro.

Five cases of sarcoidosis in the negro proved by histologic study are presented. Worthy of note is the absence of a family history of tuberculosis in any of our cases. The reports of others would lead us to believe that the majority of these cases will develop an active form of tuberculosis in the future. The possibility of Mikulicz' disease being a sarcoid is noted, as is the close resemblance of the microscopic picture of Darier-Roussy sarcoid and erythema induratum.

This was discussed by Dr. Sydney Jacobs.

Under the head of Staff Business, the Staff was informed that attendance record would be kept and members would be expected to attend 75 per cent of the staff meetings. This means an attendance of six meetings out of the yearly eight.

The regular monthly meeting of the Medical Staff of the hospital was held on December 11 at 8 p. m. The following program was presented: "Clinico-pathologic Conference" by Dr. Harvey Colvin; "Cholecystectomy" by Dr. Frank L. Loria; "Resection of the Colon in Infants" by Dr. Rawley M. Penick, Jr.; "Multiple Sclerosis" by Dr. L. A. Golden. Miss Ingram and Dr. Hockett discussed general matters pertaining to the hospital.

David R. Womack, M. D., Sec.

o

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	**Second Wednesday of every month**	**Baton Rouge**
Morehouse	**Second Tuesday of every month**	**Bastrop**
Orleans	**Second Monday of every month**	**New Orleans**
Sabine	**First Wednesday of every month**	
Second District	**Third Thursday of every month**	

AN APPEAL

Fellow members of the Louisiana State Medical Society, are there any indigent physicians in your community who are members of our State Medical Society? If so, do you ever have a desire to extend these poor unfortunates a helping hand to make their road just a bit easier in their declining years? Have you ever thought of a way that you might extend them some help? If we had a sufficient fund in our Society we could help these few unfortunates who have not collected sufficient returns from their meager earnings to provide for themselves in their old age.

Day and night, in sunshine and rain, during the heat of summer and the wintry blasts, just as you and every faithful member of organized medicine, they have freely given their services to the needy sick of their community without a thought of their own future. But alas, when their own day of need overtakes them they are forgotten by their own community and being too proud to appeal for themselves, suffer the pangs of deprivation in silence.

Every year for fifteen years we have gone before the members of this Society in an attempt to establish a fund for the care of our needy members. With an ever increasing number of indigent physicians, organized medicine is annually receiving more demands for assistance from these poor unfortunates who, during their useful, active years, gave freely of their services that their fellow men and women might enjoy good health and their communities be spared the havoc of an epidemic.

There is no more pitiful picture than the aged indigent physician, forgotten and neglected by both his former patients and community. Relief is provided and given to every individual, either direct or through some organization in almost every city or town but the indigent physician is not supposed to exist and does not come under the category of the needy.

If the members of organized medicine wish to provide a fund sufficient to assist the indigent physician, it can and should be done. A fund can be established very quickly if we are willing to increase the annual dues of the Louisiana State Medical Society one dollar per year per member. This would be the simplest plan and would not work a hardship on the individual members; this extra dollar to create a fund for the sole purpose of helping our needy members.

If this plan meets your approval, write to your counselor and member of the House of Delegates, urging him or her to give such a measure their approval at the next meeting of the House of Delegates next April in Shreveport.

The Committee for Care of
Indigent Physicians.

o

THE COMMITTEE ON MEDICAL PREPAREDNESS

From the latest report from the American Medical Association in regard to the return of questionnaires from the doctors of Louisiana, it is shown that there is still twenty-nine per cent of the physicians who have not yet answered same. It is desirable that these questionnaires be returned not only for the determination of available medical officers and the status of same but also to ascertain facts from the standpoint of the individual physician. These questionnaires, properly answered, will give the National Committee on Medical Preparedness an indication of the character of service which you wish and are capable of rendering the Government in emergency. Furthermore it is desired to accommodate the doctors, as much as possible, in regard to their preference of duty. Therefore you are doing yourself a great injustice by not sending in the completed questionnaire immediately. The office of the Louisiana State Medical Society at 1430 Tulane Avenue, New Orleans, has available a supply of these forms and you may secure an additional copy if you do not have the original sent you.

We can not too strongly recommend that you give this important function your immediate attention. The doctors of Louisiana have always responded most nobly in such matters in the past and we look forward to a one hundred per cent response to this request. Please do not fail us.

C. Grenes Cole, M. D.,
State Chairman of the American
Medical Association Committee
on Medical Preparedness.

ADDITIONAL EXAMINING PHYSICIANS FOR DRAFT BOARDS

In the November issue of the Journal there was published a list of examining physicians. The following additional appointments to the various draft boards have been made by Governor Jones. All these physicians have volunteered cheerfully for this work and they are now actively engaged in carrying on the examinations from the several draft boards scattered throughout the State.

Board	Name and Address
Allen	A. D. Mangham, Elizabeth
Allen	Gurdon Buck, Kinder
Allen	E. H. Kent, Oberlin
Ascension	G. Gaudin, Gonzales
Ascension	E. S. Kyes, Dutch Town
Assumption	C. S. Roger, Napoleonville
Assumption	P. M. Payne, Napoleonville
Assumption	W. E. Kittredge, Napoleonville
Assumption	Henry LeBlanc, Paincourtville
Assumption	J. D. Billeaudeaux, Belle Rose
Avoyelles	J. C. Goldner, Marksville
Avoyelles	A. B. Cairns, Bunkie
Beauregard	S. T. Roberts, DeRidder
Beauregard	F. R. Frazar, Merryville
Bienville	Carl Langford, Gibsland
Bienville	V. W. Fletcher, Ringgold
Bossier	H. N. Barnett, Benton
Bossier	D. C. McCuller, Bossier City
Caddo #1	W. F. Drummond, Shreveport
Caddo #1	W. P. Addison, Shreveport
Caddo #2	I. F. Hawkins, Shreveport
Caddo #2	D. R. McIntyre, Shreveport
Caddo #2	G. H. Cassity, Shreveport
Caddo #3	T. J. Smith, Shreveport
Caddo #4	G. H. Robinson, Shreveport
Caddo #4	H. Whitney Boggs, Shreveport
Caddo #5	J. L. Page, Vivian
Caddo #5	T. B. Tooke, Belcher
Calcasieu #1	W. G. Fisher, Lake Charles
Calcasieu #1	T. H. DeLaureal, Lake Charles
Calcasieu #2	W. A. K. Seale, Sulphur
Calcasieu #2	Robert Marshall, Sulphur
Calcasieu #2	P. L. McCreary, Lake Charles
Caldwell	E. L. Carroll, Columbia
Caldwell	L. B. Landry, Columbia
Claiborne	C. W. Phillips, Haynesville
E. Baton Rouge #2	Ashton Robins, Baton Rouge
E. Baton Rouge #2	C. H. Voss, Baton Rouge
E. Baton Rouge #2	John McKowen, B. Rouge
E. Baton Rouge #3	H. W. A. Lee, Baton Rouge
E. Baton Rouge #3	E. V. Whitaker, B. Rouge
E. Baton Rouge #3	B. E. Nelken, Baton Rouge
E. Baton Rouge #3	B. E. Nelken, Baton Rouge
E. Baton Rouge #3	W. B. Singletary, B. Rouge
E. Carroll	D. F. Davis, Lake Providence
Franklin	Sam Carriere, Winnsboro
Franklin	H. T. Rogers, Winnsboro
Franklin	L. F. Robinson, Winnsboro
Grant	J. L. Woodall, Colfax
Grant	D. V. Donaldson, Dry Pring
Grant	N. M. Brian, Montgomery
Grant	J. W. Scott, Rochelle
Jackson	T. A. Dekle, Jonesboro
Jackson	M. M. Hearne, Jonesboro
Jackson	R. U. Parrott, Ansley
Jackson	N. S. Holmes, Chatham
Jefferson #1	C. S. Wood, Algiers
Jefferson #1	Carroll F. Gelbke, Gretna
Jefferson #2	J. Shumard George, Metairie
Jefferson Davis	F. W. Harrell, Jennings
Lafourche	T. B. Ayo, Raceland
Lafourche	J. L. Danos, Thibodaux
Lafourche	J. A. Gravois, Golden Meadows
Lafourche	Guy R. Jones, Lockport
Lafourche	F. T. Beatrous, Thibodaux
Lafourche	A. R. Richard, Thibodaux
Lafourche	O. L. Braud, Thibodaux
Lafourche	R. H. Lolese, Thibodaux
Lincoln	Marvin Green, Ruston
Madison	A. T. Palmer, Tallulah
Madison	D. H. Allen, Tallulah
Madison	W. D. Yerger, Tallulah
Madison	E. O. Edgerton, Tallulah
Madison	D. S. Smith, Mound
Morehouse	Paul Herron, Oak Ridge
Morehouse	W. V. Garnier, Bastrop
Morehouse	C. L. Hope, Oak Ridge
Morehouse	S. I. Sims, Bastrop
Natchitoches	R. S. Roy, Natchitoches

Natchitoches..........W. H. Pierson, Natchitoches
Natchitoches..........R. E. Corkern, Nachitoches

Orleans #1..........Charles Wheeler, New Orleans
Orleans #1..........Bruno Mancuso, New Orleans
Orleans #2..........Shirley Lyons, New Orleans
Orleans #2..........A. T. Ogaard, New Orleans
Orleans #3..........Philip A. Boudreaux, New Orleans
Orleans #4..........Percy A. Phillips, New Orleans
Orleans #5..........C. F. Bellone, New Orleans
Orleans #5..........Frank Gambino, New Orleans
Orleans #6..........J. J. Ciolino, New Orleans
Orleans #6..........Lucien Delery, New Orleans
Orleans #7..........T. T. Batson, New Orleans
Orleans #7..........C. J. Wichser, New Orleans
Orleans #7..........H. T. Beacham, New Orleans
Orleans #7..........Warren L. Rosen, New Orleans
Orleans #9..........E. L. Leckert, New Orleans
Orleans #10..........J. F. Oakley, New Orleans
Orleans #10..........H. G. Butker, New Orleans
Orleans #11..........W. R. Wirth, New Orleans
Orleans #11..........M. W. Miller, New Orleans
Orleans #13..........Gordon Johnson, New Orleans
Orleans #13..........R. D. Stephenson, New Orleans
Orleans #13..........H. B. Alsobrook, New Orleans
Orleans #15..........A. F. Brock, Algiers

Ouachita #1..........Henson Coon, Monroe
Ouachita #1..........John Snelling, Monroe
Ouachita #1..........R. M. Simonton, Monroe
Ouachita #1..........A. G. McHenry, Monroe
Ouachita #1..........J. W. Cummins, Monroe
Ouachita #2..........W. L. Bendel, Monroe
Ouachita #2..........G. W. Wright, Monroe
Ouachita #2..........C. U. Johnson, Monroe

Plaquemines..........B. R. Slater, Bellechaise
Plaquemines..........C. M. Johnson, Buras
Plaquemines..........F. W. Brewer, Port Sulphur

Pointe Coupee..........E. G. Durel, New Roads
Pointe Coupee..........J. M. Mosely, Lakeland
Pointe Coupee..........J. W. Plauche, Sr., Morganza
Pointe Coupee..........J. W. Plauche, Jr. Morganza

Rapides #1..........James W. Welch, Alexandria
Rapides #1..........Rodney G. Masterson, Alexandria
Rapides #1..........C. P. Herrington, Alexandria
Rapides #1..........L. D. Gremillion, Alexandria
Rapdies #2..........B. F. Bremer, Glenmore
Rapides #2..........R. E. McGill, Alexandria
Rapides #2..........W. L. Murrell, Alexandria
Rapides #2..........E. R. Pincus, Alexandria

Red River..........L. S. Huckabay, Harmon
Red River..........W. E. Wilkinson, Coushatta

Richland..........Sheldon Teer, Delhi
Richland..........H. C. Chambers, Rayville

Sabine..........J. K. Phares, Many
Sabine..........H. M. Prothro, Pleasant Hill

St. Bernard..........Felix Planche, Arabi
St. Bernard..........A. V. Filizola, Arabi
St. James..........S. R. Campbell, Hymel
St. Jamee..........H. J. Schmidt, Convent
St. James..........A. J. Nobile, Lutcher
St. Landy #1..........W. R. Lastrapes, Opelousas
St. Landry #1..........G. D. Rackley, Opelousas
St. Landry #1..........Rodney B. Reed, Eunice
St. Landry #2..........Ertemon Lafleur, Opelousas
St. Landry #2..........G. J. Azar, Washington
St. Landry #2..........K. Morrison, Palmetto
St. Landry #2..........L. L. Collins, Port Barre
St. Landry #2..........Gordon Morgan, Melville
St. Landry #2..........L. Lazaro, Opelousas
St. Landry #2..........J. J. Stagg, Eunice
St. Martin..........Louis Weinstein, Breaux Bridge
St. Martin..........S. D. Yongue, Breaux Bridge
St. Martin..........P. H. Fleming, St. Martinville
St. Martin..........A. R. Corne, St. Martinville
St. Mary..........Louis J. Supple, Franklinton

Tangipahoa #2..........C. D. Overton, Hammond
Tangipahoa #2..........M. C. Wiginton, Hammond
Tangipahoa #2..........John Corso, Independence
Terrebonne..........L. S. Fortenberry, Houma
Terrebonne..........Willard Ellender, Houma
Terrebonne..........Roy St. Martin, Houma
Terrebonne..........Ernest Ellender, Houma
Terrebonne..........H. L. Haydel, Houma

Union..........C. C. Colvin, Bernice
Union..........C. C. Francis, Farmerville
Union..........J. G. Norris, Farmerville
Vermilion..........J. E. McClellan, Abbeville
Vernon..........E. M. Shaw, Leesville
Washington..........H. A. Stafford, Franklinton
Webster..........W. C. Gray, Springhill
Webster..........C. M. Baker, Minden
Webster..........R. E. Smith, Minden
Winn..........J. F. Faith, Winnfield
Winn..........John T. Mosely, Winnfield
Winn..........S. B. Matthews, Winnfield

It has been found advisable in addition to the list of consultants recomemnded by the Selective Service Headquarters in Washington, to obtain the assistance of urologists on the Medical Advisory Boards. The names of the physicians who have volunteered for this service, together with their assignments, are listed below: New Orleans Board #1, John Menville; #2, Eugene Vickery; #3, H. W. E. Walther; Baton Rouge Board #4, U. S. Hargrove; Lake Charles Board #6, C. O. Frederick; Alexandria Board #7, M. H. Foster; Monroe Board #8, J. W. Murphey; Shreveport Board #9, Dudley Youman.

———o———

OUACHITA PARISH MEDICAL SOCIETY

The annual meeting of the Ouachita Parish Medical Society was called to order at 7:00 p. m. at the Virginia Hotel by Dr. D. T. Milam, President, on the night of December 5.

Thanks were returned by Dr. G. M. Snellings.

The application of Dr. J. H. Parrott for membership was called upon for report by the Membership Committee. None of the members being present, it was moved by Dr. Wright, seconded by Dr. Hunter that Dr. Parrott's application for membership by reciprocity be accepted. This was carried unanimously.

The report of the President was given by Dr. D. T. Milam.

The report of the Secretary-Treasurer was read. It was moved by Dr. Wolff, seconded by Dr. G. M. Snellings that this report be accepted. This was carried.

The President declared that nominations for officers for 1941 were now in order and that nominations for President would be received. Dr. A. E. Fisher nominated Dr. Henson S. Coon. This was seconded by Dr. Wolff. Dr. C. H. Mosely nominated Dr. Joseph P. Brown. This was seconded by Dr. Hunter. Dr. Pankey moved that nominations be closed. This was seconded by Dr. G. M. Snellings. Voting was done by secret ballot and Dr. Henson S. Coon was elected President.

Nominations were then declared open for Vice-president. Dr. Hamilton nominated Dr. L. L. Titche. This was seconded by Dr. Pankey. Dr. Gallaspy moved that the nominations be closed. This was seconded by Dr. Cummins. Dr. Titche was declared elected Vice-President unanimously.

Nominations were then declared open for Secretary-Treasurer. Dr. Pankey nominated Dr. J. W. Cummins. This was seconded by Dr. G. M. Snellings. Dr. Hamilton moved that the nominations be closed. This was seconded by Dr. Mc Henry; Dr. J. W. Cummins was declared elected Secretary-Treasurer unanimously.

Nominations were then declared open for Delegate for 1941-42 to replace Dr. F. C. Bennett. Dr. Gray, Jr., moved that Dr. Bennett be re-elected and this was seconded by Dr. Wolff. Dr. G. M. Snellings moved that the nominations be closed. This was seconded by Dr. Cummins. Dr. F. C. Bennett was elected delegate for 1941-42 unanimously.

Nominations were then declared open for Alternate for Dr. F. C. Bennett for 1941-42. Dr. Gray, St., moved that Dr. D. M. Moore he re-elected and this was seconded by Dr. Wolff. Dr. Hamilton moved that the nominations be closed and this was seconded by Dr. Coon. Dr. D. M. Moore was elected alternate for Dr. F. C. Bennett for 1941-42.

Dr. Milam then introduced Dr. J. E. Walsworth, Chairman of the Committee on Arrangements for the R. W. Faulk meeting.

Dr. Walsworth then introduced the following guests: The daughters of Dr. Faulk: Mrs. Bland, Mrs. Fluker, and his grand-daughter, Miss Reddick; the Acting President of the Auxiliary to the Ouachita Parish Medical Society, Mrs. R. W. O'-Donnell; the Secretary of the Auxiliary to the Ouachita Parish Medical Society, Mrs. Henson S. Coon, and their guest, Mrs. Brown.

The guests from the surrounding parish medical societies were: Dr. Mecom from Franklin, Dr. Taylor from Union, and Dr. Leavell from Morehouse.

Dr. Walsworth then asked Dr. C. P. Gray, Sr., to present the plaque to Dr. R. W. Faulk and Dr. Faulk responded. Dr. Walsworth then read congratulatory messages to Dr. Faulk. Dr. Walsworth introduced Dr. J. Q. Graves and Dr. Graves introduced Dr. J. T. Nix of New Orleans who delivered the address to Dr. Faulk. Dr. Walsworth thanked Dr. Nix and returned the meeting to Dr. Milam.

Dr. Milam introduced the new president. Dr. Henson S. Coon and turned the meeting over to him.

J. W. Cummins, M. D., Sec.

o

BI-PARISH MEDICAL SOCIETY

After a bounteous repast in the dining room of the Rist Hotel, Society was called to order for the business and the scientific program.

Officers for 1941 elected:

Dr. W. J. Roberts	President
Dr. T. H. Pargen	Vice-President
Dr. E. M. Toler	Secty. Treasurer
Dr. C. S. Toler	Delegate
Dr. E. M. Robards	Alternate

On motion Drs. Toler, Shaw and Robards appointed to draft resolutions relative to the death of Dr. C. S. Miller. Scientific program by Drs. Cecil Lorio and J. J. Robert, Baton Rouge and Dr. C. Grenes Cole, of New Orleans. Subjects: "Allergy of Childhood," "Business Side of the Profession," and "Menace of Socialized Medicine." All three papers were discussed favorably by members present. A vote of thanks was extended to Drs. Lorio, Robert, and Cole for the presentation of their excellent papers.

E. M. Toler, M. D., Sec.

NEW OFFICERS
1941

BEAUREGARD PARISH

President: Dr. J. D. Frazar, DeRidder.
Vice-President: Dr. T. R. Sartor, DeRidder
Secretary-Treasurer: Dr. S. T. Roberts, De Ridder

CADDO PARISH

President: Dr. T. B. Tooke, Belcher
First Vice-President: Dr. C. R. Gowen, Shreveport
Second Vice-President: Dr. Harold J. Quinn, Shreveport
Secretary: Dr. Willis J. Taylor, Shreveport
Treasurer: Dr. W. R. Harwell, Shreveport

DeSOTO PARISH

President: Dr. W. B. Hewitt, Mansfield
Vice-President: Dr. R. P. Thaxton, Mansfield
Secretary-Treasurer: Dr. R. A. Tharp, Mansfield

OUACHITA PARISH

President: Dr. Henson S. Coon, Monroe
Vice-President: Dr. L. L. Titche, Monroe
Secretary-Treasurer: Dr. J. W. Cummins, Monroe

RAPIDES PARISH

President: Dr. M. B. Pearce, Alexandria
First Vice-President: Dr. R. E. McGill, Alexandria
Second Vice-President: Dr. Morris Hair, Bunkie
Secretary-Treasurer: Dr. C. P. Herrington, Alexandria

RED RIVER PARISH

President: Dr. W. B. Hunter, Coushatta
Vice-President: Dr. Jack Carlisle, East Point
Secretary-Treasurer: Dr. C. W. Reid, Coushatta

EAST BATON ROUGE PARISH

President: Dr. W. S. Slaughter, Baton Rouge
Vice-President: Dr. B. B. Lane, Jr. Baton Rouge
Secretary-Treasurer: Dr. R. C. Kemp, Baton Rouge

LAFOURCHE VALLEY MEDICAL SOCIETY

The regular meeting of the Lafourche Valley Medical Society was held in Raceland on December 18. Dr. Francis LeJeune of New Orleans presented a paper on "Hoarseness" with a moving picture demonstration; Dr. Leo Kerne of Thibodaux spoke on "Diseases of the Biliary Tract."

S. C. Collins, M. D., Sec.

THE BULLETIN OF WAR MEDICINE

Developments of the war during the last year have made it very difficult to obtain Medical Journals from Europe. In order that information of the valuable work being done should be available to the medical profession, the Medical Research Council has arranged for the publication of abstracts and summaries of all relevant modern literature on the subjects considered.

Medical experiences arising from the present war have not as yet been largely reported, but papers are appearing in this literature in steadily increasing numbers, and it is proposed, if circumstances permit, to issue the Bulletin every two months.

NEWS ITEMS

The French Hospital has revamped and reequipped the main operating room of the institution. The changes include the installation of new anesthesia apparatus, new Mont R. Reid operating table and other changes. The organization, under the leadership of Mr. Octave Garsaud, president, has also made extensive improvements in other departments.

The third annual Congress on Industrial Health, sponsored by the Council on Industrial Health of the American Medical Association, will be held January 13-14, 1941, at the Palmer House, Chicago. A splendid list of speakers has been arranged for this meeting which should be of interest to any physician engaged even remotely in the practice of industrial medicine.

A full time nose and throat man is wanted for institutional work in Louisiana. This job will pay $300 a month, plus subsistence. For informaiton apply to the office of the Journal.

FORUM ON ALLERGY

The third annual Forum on Allergy will be held at Indianapolis, headquarters, the Claypool Hotel, on January 11-12, 1941. This meeting has been held annually for several years in order to review the progress of clinical allergy; it appeals to the internist, dermatologist, otolaryngologist and physicians in other branches of clinical medicine. An excellent program has been prepared.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, reports that for the week which terminated November 16 there were exactly the same number of deaths in the City of New Orleans as during the previous week; to wit, 160, divided 99 white and 61 negroes, with 30 deaths in children under one year of age, 16 of which were colored babies. By a strange coincidence, for the third successive week there were exactly 160 deaths in the city, this week one more in the white and one fewer deaths in the negro as contrasted with the previous week. For the week which closed November 30 the deaths dropped to 134, apportioned 76 white and 58 negro; infants 13, white seven and negro six. There was a slight increase for the week which filled the first seven days of December. Of the 145 deaths occurring in this week, 96 were in the white and 49 in the negro population; 17 infants died in this time period of whom 10 were white and seven negro.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Bureau of Epidemiology of the Louisiana State Board of Health for the week ending November 23 showed that syphilis, as is its customary habit, stood at the head of the list of reported diseases with 145 cases. In numbers greater than ten, the following diseases were reported with their incidences: 53 cases of malaria, 43 of gonorrhea, 33 of trachoma, 31 of pulmonary tuberculosis, 26 of cancer, 23 of pneumonia, and 20 of whooping cough. Of the rarer diseases four cases of typus fever were found, one each in Calcasieu, East Baton Rouge, Iberia, and Vermilion parishes. A patient with tularemia was discovered in Allen Parish. The following week, the week ending November 30, there were reported 157 cases of syphilis, 27 each of pulmonary tuberculosis and gonorrhea, 22 of trachoma, 20 of cancer, 19 of diphtheria, 18 of pneumonia, and 15 of scarlet fever. During this week three cases of typhus fever were reported from New Orleans, and five of poliomyelitis were discovered, one each in Caddo, Orleans, and Vermilion and two in Richland. The excellent record of the previous week was not sustained for the first week in December although on the whole the reported diseases were at a low rate. These diseases appeared in double figures: 118 cases of syphilis, 37 of pneumonia, 33 of gonorrhea, 32 of influenza, 31 of cancer, 25 of pulmonary tuberculosis, 13 of typhoid fever, 10 each of trachoma and diphtheria. The one case of poliomyelitis reported this week occurred in Caldwell Parish. There were four cases of typhus fever from Orleans, and one each from Avoyelles and LaSalle Parishes.

IN MEMORY OF CHARLES SIMS MILLER

At the regular meeting of the Board of Administrators of the East Louisiana State Hospital held on November 19, 1940, the following resolution was unanimously adopted:

The members of the Board of Administrators wish to record their profound sorrow at the death of their superintendent, Dr. Charles Sims Miller, on Thursday, November 7, 1940.

Dr. Miller devoted twenty-six years of his life to the ministering of the patients of this Hospital, which he loved so profoundly.

The members of the Board wish to express their appreciation of the valuable service he rendered, and their personal admiration for his sincerity, loyalty of purpose and high sense of honor and justice. His sympathetic kindness and unfailing generosity inspired all those who knew him, on whom his death has left the feeling of deep sorrow.

The members of this Board desire to extend their deepest sympathy to the members of his family, and direct that a copy of this resolution be sent to them. They also direct that copies be sent the local paper, the Sixth District Medical Society, and the Louisiana State Medical Society.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

PRESS AND PUBLICITY
ANNUAL REPORT 1939-1940

During the year the following reports and news items from the state auxiliaries have been published in the New Orleans Medical and Surgical Journal.

JUNE, 1939

List of State Officers

Convention News—Report of State Convention, April 24-26, 1939, held in Alexandria, by Mrs. S. Chaillé Jamison, Delegate from Orleans Parish.

President's Message—Greeting to Auxiliary members by the incoming President, Mrs. S. M. Blackshear, New Orleans.

JULY, 1939

List of State Officers

National Auxiliary Letter—A complete account of the meeting of the Woman's Auxiliary to the American Medical Association, beginning May 15, 1939, in St. Louis. Reported by Mrs. Frederick G. Ellis, Past President State Auxiliary, Shreveport.

National Exhibits—Description of exhibits sent by each state to the National Convention in St. Louis. Reported by Mrs. Clifford P. Rutledge, President, Caddo Parish Auxiliary, Shreveport.

AUGUST, 1939

List of State Officers

National Auxiliary Legislation—Complete report of the Committee on Legislation of the Woman's Auxiliary to the American Medical Association. Reported by Mrs. Arthur A. Herold, Chairman, Shreveport (read at the A. M. A. meeting in St. Louis, May, 1939).

SEPTEMBER, 1939

The names and addresses of all members of the Board of the Woman's Auxiliary to the Louisiana State Medical Society.

OCTOBER, 1939

List of State Officers

Announcement of meeting of the Woman's Auxiliary to the Southern Medical Association, November 21-24, 1939, in Memphis, Tenn.

List of Officers and Chairman of Standing Committees of the S. M. A.

Iberville Parish—Report of meeting in Plaquemine, and money raised for donation to the Plaquemine Sanitarium ($200). Auxiliary has eleven members.

NOVEMBER, 1939

List of State Officers

Caddo Parish—Report of meeting in Shreveport, attended by Mrs. S. M. Blackshear, State President. Report by Mrs. N. Judson Bender, Shreveport.

Orleans Parish—Report of meeting in New Orleans, attended by Mrs. Roy Carl Young, President-elect of State Auxiliary. Reported by Mrs. Edwin R. Guidry, New Orleans.

Ouachita Parish—Report of meeting in Monroe, attended by Mrs. S. M. Blackshear, State President. Reported by Mrs. J. W. Cummins, Monroe.

Lafayette Parish—Report of meeting and election of officers, held in Lafayette, attended by Mrs. S. M. Blackshear, State President.

Second District—Report of meeting in Norco, attended by Mrs. S. M. Blackshear, State President, and Mrs. Roy Carl Young, President-elect.

DECEMBER, 1939

List of State Officers

Plans for the Auxiliary—A message from the President of the Woman's Auxiliary to the American Medical Association, Mrs. Rollo K. Packard, Chicago.

Education in Regard to Tuberculosis—Report of educational work done by the Orleans Parish Auxiliary. Reported by Mrs. H. B. Gessner, Chairman.

In Regard to Public Relations—A letter to the presidents of parish auxiliaries, throughout the state, urging them to hold open meetings, inviting outside guests, when the subject of state medicine would be discussed by a doctor qualified to do so. Suggestion made by Mrs. S. M. Blackshear, State President. Letter by Mrs. F. Creighton Shute, Chairman of Public Relations, State Auxiliary.

Calcasieu Parish—Report of meetings and projects carried on, meetings held each month in Lake Charles. Reported by Mrs. G. E. Barham, Lake Charles.

Rapides Parish—Report of meeting in Alexandria, attended by Mrs. S. M. Blackshear, State President. Reported by Mrs. H. Aubrey White.

JANUARY, 1940

List of State Officers

Letter from State President—Letter from Mrs. S. M. Blackshear further explaining the need for open meetings at which the subject "Why the Medical Profession is Opposed to the Wagner Bill and Similar Legislation," would be discussed by some qualified doctor.

Caddo Parish—Report of meeting in Shreveport, and projects carried on during Christmas, also entertainment of medical society. Reported by Mrs. N. Judson Bender, Shreveport.

Ouachita Parish—Report of meeting in Monroe, 6—Med. Jour.—La. State Med. Soc. News—Carson of parish medical society. Reported by Mrs. J. C. Cummins, Monroe.

Notes on the Southern Medical Meeting—A complete account of the meeting of the Woman's Auxiliary to the Southern Medical Association, held in Memphis, Tenn. Reported by Mrs. Wiley R. Buffington, New Orleans, Councilor for Louisiana.

FEBRUARY, 1940

List of State Officers

State Medicine—An editorial taken from the New Orleans Medical and Surgical Journal, a comprehensive explanation.

Orleans Parish—The report of the past year's work under the leadership of Mrs. C. Grenes Cole, and the names of officers who will serve for the following year. Reported by Mrs. Edwin R. Guidry, New Orleans.

Tangipahoa Parish—Report of meeting in Hammond, and the progress which this auxiliary is making. Reported by Mrs. M. C. Wiginton.

MARCH, 1940

List of State Officers

The Annual Convention—Announcement of the State Convention to be held in New Orleans, April 22-24, also names of Chairman of Committee on Arrangements, with program of meeting. Reported by Mrs. James W. Warren, General Chairman.

Orleans Parish—Report of meeting in New Orleans and taking over of new officers, Mrs. Aynaud F. Hébert, President. Reported by Mrs. D. C. Browne, Chairman of Press and Publicity.

Ouachita Parish—Report of meeting in Monroe, and plans for "Doctors' Day." Reported by Mrs. J. W. Cummins, Monroe.

Talks on Wagner Bill—Report that open meetings, with talks on state medicine, will be held in St. Landry, Caddo, and Washington parishes. Reported by Mrs. F. C. Shute, Chairman of Public Relations Committee, State Auxiliary.

APRIL, 1940

List of State Officers

Caddo Parish—Report on open meeting; about 300 people attended. Dr. John H. Musser, New Orleans, spoke on, "The Problems of State Medicine and How the Doctor Looks at Them." Reported by Mrs. N. J. Bender, Shreveport.

Calcasieu Parish—Report of meeting in Lake Charles, attended by Mrs. S. M. Blackshear, State President. This auxiliary will also hold an open meeting on state medicine soon.

Orleans Parish—Report of meeting in New Orleans, also plan for coming State Convention, given by Mrs. J. W. Warren, General Chairman.

St. Tammany Parish—Report of meeting in Covington, attended by Mrs. S. M. Blackshear, Mrs. Walter D. Simmons, President.

Terrebonne Parish—Report of meeting in Houma, Mrs. S. M. Blackshear, State President attending the meeting. Mrs. S. F. Landry, President.

Second District—Report of meeting in Norco, Mrs. S. M. Blackshear, State President attending. Mrs. J. Earl Clayton, President.

New Auxiliaries—Mrs. Erwin L. Gill, Organization Chairman for the State Auxiliary, announces the organization of two new auxiliaries: Beauregard Parish, President, Mrs. J. D. Frazar, of DeRidder; and Lafourche Parish, President, Mrs. Leo Kerne, of Thibodaux.

MAY, 1940

Annual Report of State President—The report of Mrs. S. M. Blackshear, State President of the Woman's Auxiliary to the Louisiana State Medical Society, will be published in this issue.

This report is not complete without making some mention of reports sent to the National Press and Publicity Chairman, and the general publicity given to the newspapers before and during our state convention.

Respectfully submitted,
Mrs. Edgar Burns,
Chairman, Press and Publicity.
April 22, 1940.

Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Press and Publicity Chairman.

BOOK REVIEWS

Medicolegal and Industrial Toxicology, Criminal Investigations, Occupational Diseases: By Henry J. Eilmann, Ph. D. Philadelphia, The Blakiston Company, 1940. Pp. 324. Price $3.00.

According to the introduction this book had its origin in a personal appreciation of the medicolegal problems in two new (?) fields, the chemical and dye industries. Accordingly in this single volume the author has undertaken to incorporate "those subjects which may be encountered frequently by the coroner, industrial physician, lawyer, insurance adjustor, laboratory expert and others."

Of the total space, 17 pages are then given to industrial poisoning, and 2 to occupational diseases. The discussions of criminal investigations and of medicolegal examinations are more extensive. There is a classification of drugs and poisons with brief outlines of their actions and of methods for separation and identification. Occasional serious errors of fact occur in this material, as for example, page 55; "Unlike hyoscyamine, atropine is eliminated principally by the kidneys." Condensation of material has been carried to the complete elimination of any references, even to the larger manuals. A section on the identification and determination of sulfanilamide in the urine is included, but one looks in vain for reference to the glycols.

The inadequacy of the discussion of industrial poisons can best be illustrated by quoting the section on chlorine derivatives: "The chlorine derivatives of the fatty series used in industry are tetrachlorethane, a powerful solvent for cellulose acetate, and tetrachlormethane, commonly called tetrachloride, used principally in fire extinguishers. The former is quite toxic and has resulted in many cases of toxic jaundice, whereas the latter is more irritant to the respiratory tract. Severe bronchitis with subsequent broncho-pneumonia has followed the use of this fire extinguisher in an enclosed place. It is also used extensively as a solvent for sulphur monochloride, used in vulcanizing the inner tubes of automobile tires. Vulcanizers often complain of an irritation of nose and throat."

This reviewer can not recommend the book.

Erwin E. Nelson, M. D.

A Manual of Otology, Rhinology and Laryngology: By Howard Charles Ballenger, M. D., F. A. C. S. Philadelphia, Lea & Febiger, 1940. Pp. 302. Price $3.75.

This book briefly and concisely covers the greater part of the problems confronting the otolaryngologist. It is written in a pleasing style, is an excellent book for the undergraduate student, and is a handy reference for the general practitioner. It is well illustrated, and the discussions of the various phases of otolaryngology are adequate for all except the specialist.

F. E. LeJeune, M. D.

Dr. Colwell's Daily Log for Physicians: Colwell Publishing Company, Champaign, Illinois, 1940. Price $6.00.

This system of financial accounts furnishes the physician with an easy means of bookkeeping. Transactions are entered day by day, and records for the month and for the year are thereby secured which comprise all the figures essential for monthly statements and for the filing of income tax returns. This year's Log also gives valuable information as to what items are deductible as professional expense.

Physicians who use the Log faithfully each day will find that it simplifies the task of keeping the necessary financial records.

Philip H. Jones, Jr., M. D.

Chemotherapy and Serum Therapy of Pneumonia: By Frederick T. Lord, M. D., E. S. Robinson, M. D., Ph. D., and Roderick Heffron, M. D. New York, Commonwealth Fund, 1940. Pp. 174. Price $1.00.

An excellent handbook on the diagnosis and treatment of the various forms of pneumonia, it is meant to replace the manual "Pneumonia and Serum Therapy" by Lord and Heffron. It discusses fully the use of sulfapyridine and brings up to date the information concerning serum therapy. It is concise, practical and authoritative.

I. L. Robbins, M. D.

Legal Guide for American Hospitals: By Emanuel Hayt, LL.B., and Lillian R. Hayt, M. A., J. D. New York, Hospital Textbook Co., 1940. Pp. 608.

The authors have added to the libraries of hospital administrators and staff physicians a comprehensive work covering in a large degree the status of legal medicine as it affects hospital practice today.

As is well known, the legal status of the nonprofit hospital varies greatly according to the state in which it is situated. The authors have made no attempt to lay down a guide for individual states but use the mechanism of citing decisions which the administrator can use as a guide in determining his procedure in most individual cases. It, of course, in no way takes the place of local legal advice which is as necessary as ever because of the constantly changing shifts in legal opinions.

It is to be hoped that there will be enough demands for a work of this kind so that additions will keep it up to date as previous books on hospital law have become obsolete a very short time after they were printed.

A. J. Hockett, M. D.

Injection Treatment: By Penn Riddle, M. D. Philadelphia, W. B. Saunders Company, 1940. Pp. 290. Price $5.50.

This book includes a discussion of many subjects amenable to injection treatment such as hernia, hydrocele, ganglion, hemorrhoids, prostate gland, angiomas, varicocele, varicose veins, bursae and joints.

The popularity of the injection treatment dates back more than a hundred years. As the science of surgery progressed the injection treatment found fewer adherents to this method. It seems to be the author's impression that the pendulum is swinging back as we find a number of men who think well of the results obtained following injection treatment.

The book is well written and contains a rather complete bibliography. The author has attempted to present an unbiased view of the subject stressing the fact that "only certain cases are suitable for injection." The chapters which include the injection treatment of joints, angiomas and the prostate gland were very brief and contained a short bibliography. Perhaps it would have been better to omit these subjects entirely. The injection treatment of varicocele, ganglion and hydrocele were discussed in like manner. The largest portion of the book included a discussion of hernia, hemorrhoids and varicose veins. The importance of some type of ligation is stressed along with the injection of varicose veins. There are a few cases of hemorrhoids and hernia which satisfactorily respond to the injection treatment.

No mention was made about the following fact: Any injection treatment is essentially a surgical procedure. Inasmuch as the injectioner should be prepared to meet all complications which arise, it should be carried out by men trained in surgery and surgical technic. A surgeon who is equally equipped to carry out the operative or injection type of treatment will rarely find it difficult to decide the procedure most suitable in the individual case.

The real danger of all injection treatment is the apparent ease of administration which appears favorable to men untrained in surgical technic, the "so called injectionists." Obviously they are in no position to meet the complications which may arise. Those men always find multifarious reasons for the injection treatment as preferable to surgery, usually omitting the best reason of all, namely; they are not adequately qualified to perform the surgical task or assume the risk of complications involved.

It would appear that the injection treatment has a definite place, but it seems to be limited to a relatively few cases. It will take a few years of trial and error, and further evaluation of results to determine its place in medicine. In the end, it will probably be the surgeon who is best qualified to render a decision. His response probably will be as follows: Yes, the injection treatment is indicated in only a few conditions and of these the cases selected are very few and far between.

Warren H. Hébert, M. D.

PUBLICATIONS RECEIVED

D. Appleton-Century Co., Ltd., New York: Abdominal Operations, by Rodney Maingot, F. R. C. S. Eng., (2 v.).

Little, Brown and Company, Boston: As I Remember Him, by Hans Zinsser. Reports on Medical Progress, 1939, compiled and edited by Robert N. Nye, M. D.

W. W. Norton and Co., Inc., New York City: Behind the Scenes of Murder, by Joseph Catton, M. D.

Simon and Schuster, New York City: A Surgeon Explains to the Layman, by M. Benmosche, M. D.

Frederick A. Stokes Company, New York City: Behind the Surgeon's Mask, by James Harpole.

The Williams and Wilkins Company, Baltimore: Modern Medical Therapy in General Practice, edited by David P. Barr, A. B., M. D., LL. D., (3 v.). A Textbook of Clinical Pathology, edited by Roy R. Kracke and Francis P. Parker.

Controlled Fertility, an Evaluation of Clinic Service, by Regine K. Stix, M. D., and Frank W. Notestein, Ph. D. Medical History of Contraception, by Norman E. Himes, Ph. D., with medical foreword by Robert Latou Dickinson, M. D., F. A. C. S.

New Orleans Medical
and
Surgical Journal

Vol. 93 FEBRUARY, 1941 No. 8

PRIMARY CARCINOMA OF THE LUNG*

ALTON OCHSNER, M. D.†
AND
MICHAEL DeBAKEY, M. D.†
New Orleans

The present widespread interest and increasing attention devoted to primary carcinoma of the lung is thoroughly deserved. Any disease entity which rises from almost complete obscurity to one of the foremost subjects of the day in the relatively short period of a few decades demands serious consideration. At the beginning of this century primary carcinoma of the lung was considered a museum curiosity. At the present time it is one of the most frequent primary malignancies of the body. Such a phenomenal rise to prominence immediately presents an intriguing challenge to the zetetic medical mind. Of even greater practical importance is the problem of therapy. No longer than a decade ago the prognosis in this condition was considered absolutely hopeless. In that short span, as a result of the rapid strides that have been made in the technical developments of thoracic surgery, the prognosis has become relatively favorable. A number of cases have now been recorded in which the patient has lived five years or more after operation. Indeed, the technical developments of the thoracic surgeon have now evolved to such a perfected state that the most important responsibility depends upon early diagnosis. For these reasons, it is considered opportune to emphasize the practical significance of this disease, its early clinical manifestations, and the available methods of diagnosis and treatment.

INCIDENCE

In 1912, Adler,[1] who reviewed a large series of collected cases of primary carcinoma of the lung, stated, "On one point, however, there is nearly complete consensus of opinion and that is that primary malignant neoplasms of the lung are among the rarest forms of the disease." At the present time such a statement would be actually ludicrous. However, it serves to show the rapid increase that has occurred in the incidence of this condition during the past few decades. Numerous authors[2-7] have recently presented studies which show that at present the *lung ranks second only to the stomach as the primary site of cancer*. That there has been a rapid and steady increase in the incidence of this condition is clearly demonstrated by numerous reports from individual institutions. In the Department of Pathology of the University of Leipzig, Assman[8] found that the incidence of carcinoma of the lung to all autopsies from 1900 to 1906 was 0.67 per cent and that of all the carcinomas, 5 per cent were pulmonary malignancies. From 1919 to 1922 these corresponding figures had increased to 1.54 and 9.17 per cent. Similarly, Holzer[9] observed that from 1895 to 1904 the percentage of carcinoma of the lung to all carcinomas was 1.04 per cent. Whereas there was no rise in the incidence of total cancer, there was a steady increase in the incidence of pulmonary malignancies. Thus, from 1915 to 1924 these corresponding figures were 0.47 per cent and 6.69 per cent. At the Dresden City Hospital, during the 67-year period, 1852 to 1919, the incidence of carcinoma of the lung as based upon all malignancies in postmortem examinations increased fivefold.[10-12] At the London Hospital, Simpson[13] found that there was a steady increase in the incidence of lung cancer in necropsies from 0.51 per cent in 1907 to 2.05 per cent in 1925. Duguid[14] also found a somewhat similar rise in the incidence of intra-thoracic malignancies at the Manchester Royal Infirmary. Probst[15] reviewed the incidence of lung cancer in postmortem cases in Zurich from 1906 to 1926 and found that whereas the incidence of cancer to all autopsies increased only from 10 per cent to 13.1 per cent, the incidence of pulmonary malignancies to all carcinomas increased from 0.19 per cent to 0.99 per cent. Huguenin,[16] in France, and Piayd[17] in Russia, also concluded that there has been a real increase in this condition in their respective countries. Lóizaga[18] in Buenos Aires, reported an incidence of 5.18 per cent of lung cancer in all postmortem carcinomas during the period 1898 to 1917, and this increased to 14.6 per cent during the years, 1918 to 1937.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

†From the Department of Surgery, School of Medicine, Tulane University, New Orleans, La.

Similarly, in this country, numerous authors from various sections have found a definite increase in the incidence of this disease. Thus, Weller,[19] at the University of Michigan Hospital, observed that the incidence of carcinoma of the lung in the first 1000 autopsies was 0.1 per cent, in the second 0.5 per cent, and of 450 in the third, 0.8 per cent. At the University of Minnesota, Barron[20] found that the incidence of lung cancer in the autopsy cases during 1899 to 1911 was zero, during 1919 to 1918, 0.19 per cent, and during 1919 to 1921, 0.89 per cent. Olson[21] reviewed the cases at the Boston City Hospital and found that the incidence of pulmonary carcinoma to all carcinoma increased annually from 7.5 per cent in 1929 to 19.1 per cent in 1934. In the autopsies performed at the Veteran's Bureau Hospital, Matz[22] observed that during the period, 1927 to 1931, the incidence of carcinoma of the lung to all carcinoma was 6.4 per cent and during the years 1932 to 1937 it was 15.8 per cent. Based upon an analysis of a collected series of cases Rosahn[23] found that the incidence of carcinoma in all autopsies increased from 10.27 per cent in the period 1910 to 1919, to only 12 per cent in the period, 1920 to 1928, whereas the incidence of carcinoma of the lung to all postmortems increased from 0.44 per cent to 0.89 per cent in these respective periods. At the Charity Hospital in New Orleans, during the past seven years, there has been an approximate fivefold increase in the incidence of necropsied pulmonary carcinoma.[5] Of even greater significance is the fact that during this same period the incidence of carcinoma of the stomach in necropsy cases has not increased. In a previous publication[6] we reviewed the mortality statistics in the United States of all persons dying of pulmonary malignancies during the period, 1920 to 1936 inclusive, and found that there was not only an actual increase in the number of deaths from this cause but also an annual increase in the death rate per hundred thousand population. Moreover, it was found that of the death rates of persons dying of malignancies of various organs the increase in the incidence of carcinoma of the lung was relatively greater.

It is obvious, therefore, from these statistics reported from various parts of the world, that the incidence of carcinoma of the lung is definitely and steadily increasing. In our opinion this increase is not only apparent but real. Whereas there is no definite explanation for this increasing incidence, numerous theories have been suggested. No attempt will be made here to review these in detail as they have been previously considered.[6] Based upon the increasing incidence of bronchiogenic carcinoma following influenza epidemics and upon the presence of metaplasia in bronchial mucosa in persons dying from this disease some have suggested a possible relationship between these conditions.[24-27] Other chronic specific and non-specific pulmonary infections such as tuberculosis,[28] syphilis,[13, 29] bronchiectasis,[30, 31] have also been considered. It is believed by some investigators that the inhalation of irritating gases such as war gas, exhaust gas of combustion motors, and gases arising from tarred roads, plays an etiologic role.[32-36] The high incidence of carcinoma of the lung among workers in the Schneeberg and Joachimsthal mines has long been known. On the basis of intensive studies made of these mines, it is believed that these malignancies are due to radio-active emanations.[37-39] Careful attention has been directed toward the possible etiologic significance of pneumoconiosis and silicosis in bronchiogenic carcinoma. Whereas some[40-42] contended that this may be a factor, others,[43, 44] are of the opinion that it is of little significance unless the inhaled dust contains carcinogenic substances. The probable significance between the increase in smoking and the increase in pulmonary malignancy has been previously emphasized by the authors.[6, 7, 45] Numerous investigators have repeatedly demonstrated the irritating carcinogenic effects of tobacco.[46-50] Roffo,[51] on the basis of his extensive investigations, is convinced that tobacco is one of the most important carcinogenic agents. He has been able to produce tumors in rabbits as easily with tobacco tar as with coal tar. Hoffmann[52] is "strongly of the opinion that a relation between the increase in smoking habits and cancer of the lung may be safely assumed to exist." We[6] found a significant relationship between the increased incidence of carcinoma of the lung in the United States and the increased production of tobacco.

The sex incidence of primary carcinoma of the lung reveals a preponderance in the male. Simons[53] reported that males predominated in a ratio of four to one. In a collected series of 8,575 cases, it was found that 78.9 per cent were males and 21 per cent were females.[3] The effect upon the sex incidence of the recent increase in women smokers will be interesting to observe.

Carcinoma of the lung occurs with greatest frequency in the fifth and sixth decades. In Brunn's[54] series, 62 per cent occurred in this age group. Breckwoldt[55] found the most frequent occurrence between 50 and 70 years. Fischer[56] observed that one-third occurred in the fifth decade and one-third after the age of 60. In a series of 4,307 collected cases we[6] found that approximately 60 per cent occurred between the ages of 40 and 60 years and about 80 per cent between the ages of 40 and 70 years. It was significant, however, that 10.7 per cent occurred between the ages of 30 and 40 years. Weill[57] reported a case in a child one year of age and Frommel[31] in a patient 91 years of age.

PATHOLOGY

In the past it was believed that some lung cancers were alveolar in origin, but at present it is the consensus that practically all primary carcinomas of the lung are bronchiogenic and originate from the basement cells of the bronchial or bronchiolar mucosa. Because of the characteristic pleomorphism of these neoplasia considerable variation in the histopathologic classification has resulted. The majority of observers have classified them into three general groups: (1) Squamous cell carcinoma, (2) small or undifferentiated cell carcinoma (oat cell), and (3) adenocarcinoma. We are of the opinion, however, that the most logical classification is that proposed by Halpert[58] and based upon the development of the cells lining the bronchi. The cells of the mucous membrane lining the bronchi and bronchioles normally represent varying degrees of differentiation and specialization of the original entodermal cells. According to Halpert[58] the undifferentiated entodermal ancestor cell is capable of developing into a variety of cells including the ciliated cylindrical and goblet cells. Beneath these and lined up along the border of the tunica propria are the cells from which the ciliated cylindrical and goblet cells are replenished and which he calls "reserve cells." In his opinion carcinoma of the lung originates from these "reserve" cells by atypical proliferation. On this basis and depending upon the type of cell which predominates primary carcinoma of the lung may be classified into three groups: (1) Reserve cell carcinoma, (2) cylindrical cell carcinoma, and (3) squamous cell carcinoma.

These neoplasia occur most frequently in the hilar region. Boyd[59] found that 90 per cent were centrally located and Edwards[60] states that only 20 per cent are peripheral. Others[4, 19] have also observed that only a small incidence, less than 15 per cent, were peripheral. Depending upon the site of origin the gross changes will vary. The more centrally located tumors eventually produce bronchial obstruction with consequent atelectasis distally and secondary infection. The peripherally located tumors are more circumscribed solid masses of tissue which later show central necrosis.

The right side has been found to be involved more frequently than the left. Fischer[56] collected a series of 3,735 cases and found the right side involved in 53 per cent, the left in 45, and the lesion bilateral in 2 per cent. The right upper lobe bronchus was most frequently involved and in the order named the next most frequent were: The right main bronchus, the left upper lobe bronchus, the right lower lobe bronchus, the left main bronchus, and the left lower lobe bronchus. In a collected series of 4,732 cases we[6] found the right lung involved in 58.3 per cent and the left in 41.6 per cent.

Metastasis from primary carcinoma of the lung occurs by direct extension, through the lymphatics, by way of the blood stream, and by "bronchial embolism." The most frequent sites of metastatic involvement are the regional lymph nodes, and the next most frequent is the liver. Olson[21] found the tracheobronchial lymph nodes involved in 86 per cent and the liver in 35.8 per cent. Frissell and Knox[61] found extension to the regional lymph nodes in 97.4 per cent. In the collected series analysed by Miller and Jones[62] the liver was involved in 30.7 per cent. In a series of 2,579 cases collected by us[6] the regional nodes were involved in 75.9 per cent, the liver in 33.4 per cent, the bones in 20.4 per cent, the adrenals in 17.6 per cent, the kidneys in 16 per cent, the brain in 14.6 per cent, the heart and pericardium in 10.4 per cent, and the pancreas in 5.1 per cent.

CLINICAL MANIFESTATIONS

The authors have previously emphasized the fact that there is no characteristic clinical picture of primary carcinoma of the lung. When the condition has progressed to the stage in which the clinical manifestation obviously reflects the diagnosis, the prognosis is hopeless. It is imperative, therefore, to consider the earlier manifestations. The onset is characteristically so insidious that frequently it is difficult to determine just when the symptoms began. This is particularly true of smokers, because they almost invariably complain of a chronic cough and cough is not only the most constant but also one of the earliest symptoms of carcinoma of the lung. It is indeed unfortunate that the almost universal use of tobacco has resulted in a habitual cough, because the complaint of cough in the patient with an early carcinoma of the lung is likely to be disregarded and attributed to smoking. Usually the cough is nonproductive in the early stages but later is accompanied by expectoration which becomes progressively more profuse and mucopurulent in character and frequently blood tinged.

In our experience the patient frequently dates the onset of his illness to a recent acute respiratory tract infection, such as an acute bronchitis or influenza. Following this acute illness he continues to have thoracic involvement and in spite of treatment does not seem to improve.

Hemoptysis is not a frequent manifestation in the early stage. Brines and Kenning[3] found that hemoptysis was the chief complaint in 18.9 per cent of their series but was present some time during the course of the illness in 48.3 per cent. Simons[53] observed that it occurred in 40 per cent of his collected series. In elderly patients hemoptysis is particularly significant, as it always suggests the possibility of carcinoma of the lung. Thoracic pain is a variable complaint and is frequently an early manifestation. However, its vague and indefinite character is likely to cause it to be disregarded by the patient. Brines and Kenning[3] found it present in 60 per cent of their series and the chief complaint in 44.8 per cent. Frissell and Knox[61] and Simons[53] found that it occurred in approximately 72 and 60 per cent of their respective series. In the more peripherally located tumors, pain is frequently the earliest symptom. Characteristically, this pain persists in spite of therapy. Dyspnea, pyrexia, emaciation, and weakness are obviously late manifestations.

The duration of symptoms varies considerably, but in the reported statistics the period of time elapsing between the onset of symptoms and death is relatively short. Koletsky[4] found that the average duration of symptoms from onset until death was about six months. King[63] reported an average duration of life of 9.3 months. In the Charity Hospital series[5] this period was five months. Whereas from these statistics it would appear that carcinoma of the lung is a rapidly progressive condition, it is our opinion that these reports do not necessarily indicate the true duration of symptoms. As previously emphasized[6] these figures are based upon autopsy cases, and consequently, no serious effort may have been made to elicit inaugural symptoms. In one of the authors' cases hemoptysis was the first manifestation noticed and occurred two weeks before admission, although the patient, who was a heavy smoker, had had a cough for a period of years. At operation a relatively large tumor, involving the hilar region and consequently inoperable, was found. The authors have had several other cases in which the lesion obviously had been present for a long period of time, although according to the history the duration of symptoms was relatively short.

The physical findings in primary carcinoma of the lung are extremely variable and depend upon the type and extent of the lesion as well as the location. Not infrequently there are absolutely no abnormalities upon physical examination. This occurs especially in the earlier stages. Later limitation of expansion, dulness, decreased breath sounds, and rales may be present. Unfortunately, such obvious physical signs are generally indicative of inoperability.

DIAGNOSIS

As previously stated, the most important factor in the diagnosis of primary carcinoma of the lung is the consideration of its possible presence. Every patient forty years of age or older who complains of cough, hemoptysis, or thoracic discomfort should be suspected of having pulmonary carcinoma until this diagnosis has been absolutely excluded. Careful roentgenographic studies should always be made. In the early stages the roentgenographic interpretation of centrally located lesions which are the most frequent type is generally more difficult because of confusion with hilar shadows produced by other lesions and by normal structures. As the lesion progresses, bronchial obstruction eventually occurs with consequent atelectasis of one or more lobes. The roentgenogram then reveals a shadow with displacement of the mediastinal structures toward the affected side. In the peripherally located tumor the roentgenographic shadow is more clearly defined and may be differentiated earlier. That roentgenographic examination is an important procedure is clearly demonstrated by the high incidence of correct diagnoses reported following its use. Andrus[64] and Vinson[65] have reported correct diagnoses by roentgenographic examination in over 90 per cent of the cases.

Because of the fact that the great majority of these lesions are centrally located, bronchoscopy may be considered one of the most important diagnostic procedures in primary bronchiogenic carcinoma. The bronchoscopic visualization of the tumor and the removal of a section for biopsy study obviously increase the accuracy of diagnosis. However, in those cases in which the lesion involves the upper lobe bronchi difficulty may be encountered in demonstrating the tumor. Recently, Gebauer[66] has reported a bronchoscopic mirror which he devised for upper lobe visualization. The incidence of positive diagnoses by means of bronchoscopy is over 70 per cent. A number of authors have described the characteristic bronchoscopic features and no attempt will be made here to discuss them in detail.[67-71]

Bronchography is another important diagnostic procedure and is particularly advantageous in those cases in which the tumor mass does not cast a shadow. Intratracheal instillation of lipiodol followed by roentgenographic examination may reveal partial or complete occlusion of the bronchi. Not infrequently bronchial narrowing is tapering in character. The transglottic method previously described for the instillation of lipiodol is considered one of the simplest.[72]

Aspiration biopsy is another diagnostic procedure which has been suggested. This procedure has the advantage of permitting the accurate demonstration of malignancy especially in peripheral lesions but, as previously emphasized, is dangerous because of the possibility of transplanting malignant cells into the tissues through which the needle passes. The demonstration of malignant cells in expectorated material was early described by Dudgeon,[73, 74] who was able to make a diagnosis in 60 per cent of the patients by this procedure. It is important, however, that a pathologist trained in this technic and in the recognition of these cells perform the examination. Similarly, examination of aspirated pleural fluid may also reveal the presence of malignant cells. This procedure was described by Mandlebaum,[75] and Seecof[76] and Goldman[77] reported incidences of positive diagnoses in 70 and 80 per cent respectively. Usually, however, when the diagnosis can be made by this method, the tumor is inoperable.

TREATMENT

It is a generally accepted fact that the only curative treatment of carcinoma of the lung is surgical extirpation. Radiation therapy has failed miserably in the treatment of primary carcinoma of the lung. This procedure has been employed in alleviating the manifestations and has been reported to prolong life for possibly a few months, although this is also doubtful.[78] Maxwell and Nicholson[79] found that roentgen therapy may have prolonged life in four of sixteen cases and in three it undoubtedly caused a more rapid fatal termination. Others[80-82] have reported somewhat similar experiences.

A number of authors have reported the procedure of simple lobectomy of the involved lobe in the surgical treatment of primary carcinoma of the lung, but it is now the consensus among thoracic surgeons that pneumonectomy is the only rational procedure. Only by its performance can the regional lymph nodes, which as previously shown are involved in a relatively high incidence of cases, be extirpated together with the primary lesion. In a previous publication[45] we described in detail the technic of the operative procedure, and for this reason no attempt will be made here to discuss it at length. In general, two approaches may be employed, either an anterior or a posterolateral. After entering the pleural cavity and freeing all adhesions, the hilar structures are exposed by incising and mobilizing the mediastinal pleura. The hilar vessels are isolated individually and divided between transfixation ligation sutures of silk. The bronchus is severed between clamps and the stump closed by mattress sutures of silk. The mediastinal nodes are carefully extirpated. It is for this reason that individual isolation of the hilar structures should be done. Mass ligation does not permit removal of these glands. Pleuralization of the stump of the hilar structures is performed by approximating the anterior and posterior mediastinal flaps. The pleural cavity is closed without drainage.

The first pneumonectomy for carcinoma of the lung was probably performed by Kummel,[83] in 1910. However, this patient died on the sixth postoperative day. Subsequently several other unsuccessful attempts were made but the first operation which recovered was performed by Graham[84] in 1933. This patient, a practicing physician, is still living and enjoying good health. Since then, a number of successful cases have been reported and the constantly increasing number of these cases is more and more encouraging.

We have previously analyzed a series of 101 cases collected from the literature and

15 personal cases. The mortality in the collected series was approximately 60 per cent and in our series, 53 per cent. Since this report we have performed four additional operations, giving a total of 19 and a mortality of 47.3 per cent. The causes of death in the collected series following operation were infection and pneumonia in 39.2 per cent, cardiac failure and pulmonary edema in 23.5 per cent, hemorrhage in 13.7 per cent, metastases in 9.8 per cent, thrombosis and embolism in 7.8 per cent, and shock, peritonitis and asphyxia in 1.9 per cent each.

SUMMARY

1. The incidence of primary carcinoma of the lung is definitely and steadily increasing. At present, the lung ranks second only to the stomach as the primary site of cancer. The various theories that have been advanced in an attempt to explain this increasing incidence are briefly reviewed.

2. Primary carcinoma of the lung occurs predominantly in the male sex. Its most frequent incidence is in the fifth and sixth decades.

3. There is no characteristic clinical picture of early carcinoma of the lung. The condition should be suspected in every patient past forty years of age who complains of cough that cannot be reasonably explained and that does not readily respond to appropriate therapy.

4. The pathologic features of the disease are discussed.

5. The available methods of diagnosis are reviewed and critically evaluated. Roentgenography and bronchoscopy are valuable diagnostic procedures and will provide an accurate diagnosis in over 70 per cent of the cases.

6. Radiation therapy is of little or no value in the treatment of primary carcinoma of the lung.

7. The only curative treatment is surgical extirpation of the involved lung. The results of operation are briefly reviewed.

REFERENCES

1. Adler, I.: Primary Malignant Growths of the Lung and Bronchi, New York, Longmans Green and Co., 1912.
2. Kikuth, W.: Ueber Lungencarcinom, Virch. f. path. Anat., 225:107, 1925.
3. Brines, O. A. and Kenning, J. C.: Bronchogenic carcinoma, Am. J. Clin. Path., 7:120, 1937.
4. Koletsky, Simon: Primary carcinoma of the lung; a clinical and pathologic study of one hundred cases, Arch. Int. Med., 62:636, 1938.
5. D'Aunoy, Rigney; Pearson, Bjarm; and Halpert, Béla: Carcinoma of the lung; an analysis of 74 autopsies, Am. J. Path., 15:567, 1939.
6. Ochsner, Alton and DeBakey, Michael: Carcinoma of the lung, Arch. Surg. (in press).
7. DeBakey, Michael and Ochsner, Alton: Carcinoma of the lung, Tri-State Med. J., 12:2524, 1940.
8. Assmann, H.: Zur Frage der Pathogenese and zur Klinik des Bronchialkarzinoms, Med. Klin., 20:1757, 1924.
9. Holzer, Hedwig: Zur Frage der Haufigkeit des Bronchialkrebses, Med. Klin., 21:1235, 1925.
10. Reinhardt, W.: Der primären Lungenkrebs, Arch. d. Heilk., 19:369, 1878.
11. Wolf, K.: Der primäre Lungenkrebs, Fortschr. d. Med., 13:725, 1895.
12. Rau, W.: Eine vergleichende Statistik der sezierten Fälle von Krebs, Ztschr. f. Krebsforsch, 18:141, 1921.
13. Simpson, S. L.: Primary carcinoma of the lung, Quart. J. Med., 22:413, 1928-1929.
14. Duguid, J. B.: Intrathoracic tumors in Manchester, Lancet, 2:111, 125, 1927.
15. Probst, R.: Die Häufigkeit des Lungencarcinoms, statistische Untersuchungen am Material des pathol. Institutes der Universtät Zürich, Ztschr. f. Krebsforsch., 25:431, 1927.
16. Huguenin, R.: Le Cancer Primitif du Poumon, Paris Masson et Cie, 1928.
17. Piayd, F. F.: Symptoms, diagnosis and pathologic anatomy of primary carcinoma of the lungs, Sovet. vrach. gaz., pp. 1235-1241, Sept. 15, 1934.
18. Lóizaga, N. S.: Del Carcinoma Primitivo Broncopulmonar, Iibreria y Editorial "El Ateneo", Buenos Aires, 1938.
19. Weller, C.: Pathology of primary carcinoma of the lung, Arch. Path., 7:478, 1929.
20. Barron, Moses: Carcinoma of lung; a study of its incidence, pathology, and relative importance, Arch. Surg., 4:624, 1922.
21. Olson, K. B.: Primary carcinoma of the lung; a pathological study, Am. J. Path., 11:449, 1935.
22. Matz, P. B.: Incidence of primary bronchogenic carcinoma, J. A. M. A., 111:2086, 1938.
23. Rosahn, P. D.: The incidence of primary carcinoma of the lung, Am. J. M. Sc., 179:803, 1930.
24. Winternitz, M. C., Wason, I. M., and McNamara, F. P.: The Pathology of Influenza, New Haven, Yale University Press, 1920.
25. Askanazy, J.: Ueber die Veränderungen der grossen Luftwege besonders ihre Epithelmetaplasie bei der Influenza. Cor. Bl. f. scweiz. Aerzte, 49:465, 1919.
26. Berblinger: Die Zunahme des primären Lungenkrebses in den Jahren 1920-24, Klin. Wchnschr., 4:913, 1925.
27. Mittasch, G.: Ueber pathologisch-anatomischen Grundlagen der Influenza mit besonderer Berucksichtigung der Gehirnveranderungen, Frankfurt. Ztschr. f. Path., 26:406, 1922.
28. Ewing, J.: Neoplastic Diseases, ed. 3, Philadelphia, W. B. Saunders, 1928.
29. Martin, J. F., and Colrat: Cancer primitif du poumon et syphilis, J. de méd. de Lyon, 4:1049, 1923.
30. Siegmund, H.: Krebsentwicklung in Bronchiectasen-Bemerkung über die Metaplasie der Bronchialepithels, Virchows Arch. f. path. Anat., 236:191, 1922.
31. Frommel, E.: Les états pulmonaires prédisposant au cancer, Rev. de méd., 44:31, 1927.
32. Kawahata, K.: Ueber die gewerblich hervorgerufenen Lungenkrebse bei Generator-Gas-Arbeitern in den Stahlwerken, Gann, 32:367, 1938.
33. Hampeln: Häufigkeit und Ursache des primären Lungencarcinoms, Grenzgeb. f. Chir. u. Med., 36:145, 1922.

34. Stähelin: Zunahme des primären Lungenkrebses, Klin. Wchnschr., 4:1853, 1925.

35. Kennaway, W. N., and Kennaway, E. L.: Study of incidence of cancer of lung and larynx, J. Hyg., 36:236, 1936.

36. Heilman, P.: Ueber die Zuuahme der primären Lungencarcinome von Standpunkte der Hygiene auc betrachtet, Virch. Arch. f. path. Anat., 255:549, 1926.

37. Brandt, A.: Bericht über die im Schneebergen Gebiet auf Veranlassung des Reichsarsschusses für Krebsbekämpfung durchgeführten Untersuchunger, Ztschr. f. Krebsforsch, 47:108, 1938.

38. Döhnert, H. R.: Experimentelle Untersuchungen zur Frage des Schneeberger Lungenkrebses, Ztschr. f. Krebsforsch, 47:209. 1938.

39. Pelier, Sigismund: Lung cancer among mine workers in Joachimsthal, Human Biology, 11:130, 1939.

40. Anderson, C. S. and Dible, J. H.: Silicosis and carcinoma of lung, J. Hygiene, 36:185, 1938.

41. Klotz, M. O.: The association of silicosis and carcinoma of the lung, Am. J. Cancer, 35:38, 1939.

42. Lynch, K. M., and Smith, W. A.: Pulmonary asbestosis; a report of bronchial carcinoma and epithelial metaplasia, Am. J. Cancer, 36:567, 1939.

43. Vorwald, A. J., and Karr, J. W.: Pneumoconiosis and pulmonary carcinoma, Am. J. Path., 14:49, 1938.

44. Report: Miners Phthisis Medical Bureau, Union of South Africa, Pretoria, 1936.

45. Ochsner, Alton, and DeBakey, Michael: Primary pulmonary malignancy. Treatment of total pneumonectomy. Analysis of 79 collected cases and presentation of seven personal cases, Surg. Gynec. & Obst., 68:435, 1939.

46. Leitch: The specificity of carcinogenic agents, Compt. rend. Cong. du cancer, Strasbourg, p. 39, 1923.

47. Philippson, A.: Etiology of cancer; clinical observations, Klin. Wchnschr., 5:1513, 1926.

48. Lickint, F.: Tabak and Tabakrauch als ätiologischer Faktor des Carcinoms, Ztschr. f. Krebsforsch, 30:349, 1929.

49. Roffo, A. H.: Leucoplasia tabáquica expérimental, Bol. Inst. de med. exper. para el estud y trat del cancer, 7:501, 1930.

50. Boehucke: Krebs and Tabak, Fortschr. d. Med., 53:629, 1935.

51. Roffo, A. N.: Krebserzengende Einheit der verschredenen Tabakteere, Deut. med. Wchnschr., 65:963, 1939.

52. Hoffman, F. L.: Cancer and smoking habits, Ann. Surg., 93:50, 1931.

53. Simons, E. J.: Primary Carcinoma of the Lung. The Year Book Publishers, 1937.

54. Brunn, H.: Primary carcinoma of lung: report of two operative cases, Arch. Surg., 12:406, 1926.

55. Breckwoldt, R.: Zur Frage der Zunahme der Lungenkrebse, Ztschr. f. Krebs., 23:128, 1926.

56. Fischer, W.: In Henke und Lubarsch: Handbuch der speziellen pathologischen Anatomie und Histologie, Springer-Berlin, 3:509, 1931.

57. Weill; Hallé; Vogt, Claire; Duhem; and Dubost: Quoted by Lóizaga, Ref. No. 18.

58. Halpert, Béla: Pathologic aspects of bronchiogenic carcinoma, New Orleans Med. and Surg. J., 91:439, 1939.

59. Boyd, W.: Notes on pathology of primary carcinoma of lung, Canad. M. A. J., 23:210, 1930.

60. Edwards, A. T.: Cancer of the lungs and pleurae, Practitioner, 143:29, 1939.

61. Frissell, L. E., and Knox, L. C.: Primary cancer of the lung, Am. J. Cancer, 30:219, 1937.

62. Miller, J. A., and Jones, O. R.: Primary carcinoma of the lung, Am. Rev. Tuberc., 21:1, 1930.

63. King, D. S.: Primary cancer of lung, New England J. Med., 219:828, 1938.

64. Andrus, W. de W.: Report of the chest tumor registry, J. Thoracic Surg., 4:236, 1935.

65. Vinson, P. P.: Primary malignant disease of the tracheobronchial tree, report of 140 cases, Tr. Sect. Laryng. Otol. and Rhin. A. M. A., 87:62, 1936.

66. Gebauer, P. W.: A bronchoscopic mirror for upper lobe visualization, J. Thoracic Surg., 9:89, 1939.

67. Jackson, C.: Malignant growths of the lung; bronchoscopic diagnosis, Arch. Otolaryng., 12:747, 1930.

68. Jackson, C. W. C., and Konzelmann, F. W.: Bronchial carcinoma; bronchus biopsy in a series of 32 cases, J. Thoracic Surg., 4:165, 1934.

69. Kramer, R., and Som, M. L.: Bronchoscopic study of carcinoma of the lung; analysis of 300 cases of bronchial carcinoma with 100 postmortem examinations, Arch. Otolaryngol., 23:526, 1936.

70. Holinger, P. H.: The diagnosis of bronchogenic carcinoma; bronchoscopic aspects, Ill. Med. J., 72:431, 1937.

71. Clerf, L. H.: Peroral endoscopy, Internat. Clin., 2:267, 1939.

72. Ochsner, Alton: Brouchography following the "passive" introduction of contrast media into the tracheobronchial tree, Wisconsin M. J., 25:544, 1920.

73. Dudgeon, L. S., and Wrigley, C. H.: On demonstration of particles of malignant growth in sputum by means of wet-film method, J. Laryngol. & Otol., 50:752, 1935.

74. Dudgeon, L. S., and Patrick, C. V.: New method for rapid microscopic diagnosis of tumours with account of 200 cases so examined, Brit. J. Surg., 15:250, 1927.

75. Mandlebaum, F. S.: Quoted by Goldman, Arch. Surg., 19:1672, 1929.

76. Seecof, D. P.: The value of examlning body fluids for tumor cells, Proc. New York Path. Soc., 24:3, 1924.

77. Goldman, Alfred: Cytology of serous effusions, with special reference to tumor cells, Arch. Surg., 19:1672, 1929.

78. Brock, R. C.: Pulmonary new growths; pathology, diagnosis, and treatment, Lancet, 2:1103, 1938.

79. Maxwell, J., and Nicholson, W. A.: A clinical study of bronchial carcinoma, Quart. J. Med., 24:29, 1930.

80. Hunt, T. C.: Pulmonary neoplasms; a report of 26 cases, Lancet, 1:759, 1929.

81. Paterson, R.: The relationship between the clinical and pathological findings in primary pulmonary malignancy, Canad. M. A. J., 22:333, 1930.

82. Robey, W. H.: Malignant diseases of the lungs, M. Clin. N. Am., 4:1811, 1920.

83. Kummel, H.: Discussion of W. Müller: Demonstration zur Exstirpation ganzer Lungenlappen, Verhandlungen der Deutschen Gessellschaft für chirurgie, 40:147, 1911.

84. Graham, E. A., and Singer, J. J.: Successful removal of an entire lung for carcinoma of bronchus, J. A. M. A., 101:371, 1933.

DISCUSSION

Dr. W. R. Mathews (Shreveport): Drs. Ochsner and DeBakey have quite properly emphasized the high incidence of carcinoma of the lung. As late as twenty years ago leading medical centers were reluctant to admit there were many cases of primary carcinoma originating in the lung. As a contrast today many hold that carcinoma of the lung is one of the most prevalent diseases. On the basis of autopsy and clinical observations and experience at large, indicated by Drs. Ochsner and DeBakey, from 10 to 15 per cent of all malignancies originate in the lung.

Dr. Julius Lane Wilson (New Orleans): There can be no question about the increasing incidence of pulmonary carcinoma. The Metropolitan Life Insurance Company, in a statistical bulletin a few months ago, showed that the mortality rate among policy holders has gone up in twenty years from 2.6 per hundred thousand to 15 per hundred thousand, between the ages of 45 and 74. These figures are interesting in connection with etiology. This increase is divided according to sex and the interesting part of this graph, of which I have no slide, is that most of this increase, particularly since 1925, has been in the male sex, which they interpret to mean that tobacco has no particular influence because since 1918 there has been more increase in the use of tobacco by women.

As to symptoms, cough is rightly emphasized. Many smokers have chronic cough and many nonsmokers also cough in the morning. Perhaps we can say the important thing is a change of cough habit. These cases give a history of having developed a disturbing cough at all hours. An habitual cough is often not noticed by the person who has it. Pain, of course, is important although occurring in a much smaller percentage than cough. The characteristic pain is persistent and not relieved with ordinary measures,—strapping, fluid accumulation and aspiration do not change it. Hemoptysis, in the patients in whom it occurs, is an important symptom.

The physical signs, when well developed, are those of tumor or atelectasis.

I want to emphasize again Drs. Ochsner's and DeBakey's point about considering every man over 45 who has a cough not otherwise explained and particularly if there is blood in sputum, as a possible case of carcinoma of the lung.

I might also say a word about tuberculosis at this point. Somebody said that hemoptysis occurring in a person under 45 means tuberculosis and over 45 years of age, carcinoma. Tuberculosis can be ruled out by a chest x-ray and sputum examination. A male who has a persistent cough with or without hemoptysis and has not tuberculosis should be bronchoscoped because he very possibly has carcinoma of the lung.

Dr. P. R. Gilmer (Shreveport): I would like to emphasize a few points already brought out. In the first place early diagnosis of carcinoma of the lung naturally means a better opportunity for surgical removal and for permanent cure. That is accepted now and there is no doubt about it. From the diagnostic standpoint, I agree with Drs. Ochsner and DeBakey and certainly want to agree with Dr. Wilson's discussion. If we are going to diagnose carcinoma in an operable stage, it must be suspected first, just as, for instance, in the diagnosis of early tuberculosis. Most of those early cases are diagnosed first as "suspected carcinoma" and are then studied carefully and the final diagnosis made. If physicians keep carcinoma of the lung in mind and suspect it and remember, as Drs. Ochsner and DeBakey pointed out, and unexplained persistent cough is suggestive of carcinoma, these cases may be diagnosed sufficiently early.

Another point is that a negative radiograph of the chest does not, by any means, exclude carcinoma of the lung. As a matter of fact maybe we should not use the radiograph because we can not always see anything in the lung, especially in early cases. I think that brings us down to the point that if we suspect carcinoma of the lung the diagnosis is made and confirmed and proved only by bronchoscopic examination and biopsy. Obviously some of the upper lobe involvements are not going to be successfully biopsied but only a small percentage of cases occur in the upper lobe. In the lower lobe certainly bronchoscopy and biopsy can bring out correct diagnosis.

As to operability of patients, this depends upon the location of the primary growth. Obviously if high up and well infiltrated, there is no opportunity to remove it because there is no intervening healthy tissue at the hilus stump for suturing.

I would like to leave this thought. Suspect carcinoma of the lung just like you have been told to suspect early tuberculosis. Once suspected, do not stop there and even if there is a negative radiograph, have the patient bronchoscoped.

Dr. J. Ralph Phillips (Baton Rouge): How can you tell the difference between bronchiogenic carcinoma and aneurysm of the aorta? Sometimes it is very difficult to make a differential diagnosis between a bronchiogenic carcinoma and aneurysm of the aorta. I can remember one case in which the diagnosis had been made from x-ray and physical findings of a bronchiogenic carcinoma of the left bronchus, and on bronchoscopy a piece was taken from the tumor mass and on autopsy this mass turned out to be a aneurysm of the aorta which had eroded the left bronchus. Another case which I have in mind was diagnosed by x-ray and physical findings as a carcinoma of the right bronchus, and on bronchoscopy a non-pulsating mass was noted in the right bronchus. A biopsy was taken and again on autopsy an aneurysm of the aorta was found which had eroded the right bronchus. With these and other findings I have found it difficult at times to differentiate between an aortic aneurysm and carcinoma lung.

Dr. Ochsner (In closing): Unquestionably the diagnosis is difficult. It is bronchoscopically difficult. Only 75 per cent can be so diagnosed. We would rather depend upon exploratory thoracotomy. Recently we have seen a patient in whom the radiologist made a diagnosis of aneurysm. The patient's symptoms had progressed relatively rapidly which made us think he had a malignancy, which was verified by exploration. We would rather explore these individuals, and this is a point I would like to emphasize. At one time we felt that one was not justified in doing a thoracotomy unless the case was positively diagnosed tumor or by biopsy. That is not so now.

We felt that 19 of our patients had carcinoma of the lung. These patients were operated upon and a pneumonectomy done. Of our 19 patients in whom we were able to do a pneumonectomy for malignancy, ten of them left the hospital, two of them died on the table, and seven died in a period of convalescence in the hospital. Of the ten who left the hospital, eight are still living.

THE TREATMENT OF CHRONIC INFECTIOUS ARTHRITIS*

MORGAN W. MATTHEWS, M. D.†
SHREVEPORT, LA.

The treatment of chronic infectious arthritis is one of the most difficult problems in internal medicine. As regards the treatment of the disease, physicians tend to group themselves roughly into three main groups. Physicians in the first group believe that treatment is entirely unsuccessful and that an individual contracting the disease is doomed to invalidism and hopeless crippledom. Fortunately for the patient, physicians in this group are relatively few. The second group constitutes the vast majority of physicians that the chronic arthritic patient consults. These physicians are bewildered by the claims and counterclaims of the various pharmaceutical manufacturers. The products recommended by these firms are found to be of value in occasional cases but in the majority of cases fail to produce the desired results. As a group, after repeated failures of highly touted therapeutic regimens, they rapidly drift into group one and become therapeutic nihilists. The third group is composed of physicians who have had a vast amount of experience in the treatment of rheumatism. They have seen many highly recommended remedies come and go and have come to the inescapable conclusion that there is no single remedial agent, either drug or therapeutic procedure, that is constantly effective in the disease. These physicians have found that the treatment of chronic infectious arthritis is best approached on a broad and comprehensive basis similar to that employed in tuberculosis. A therapeutic program directed towards improving the physical condition of the patient to the maximum degree is most apt to be successful in the majority of cases. It is with this approach to the disease that this article is concerned.

The number of remedies that have been recommended at one time or another as "sure cures" of arthritis would no doubt fill a single spaced typewritten sheet of paper as long as both outstretched arms. This fact in itself is testimony to the fact that there is no single remedial agent that is 100 per cent effective in combating this disease.

With this brief preamble it is well to define what is meant by the term infectious arthritis. The disease is known by a variety of synonyms, the more important of which are atrophic, rheumatoid and proliferative arthritis. No attempt will be made to outline the differential points between atrophic arthritis and the other forms of the disease. However, a discussion of the differential points between chronic infectious and hypertrophic (senescent, osteo-arthritis, degenerative, arthritis deformans) should prove of value, because it is with this joint disease that atrophic arthritis is most apt to be confused. Table I illustrates the differential points between the two conditions. A consideration of these points usually enables a differentiation between the two diseases to be made in most instances.

THE CLINICAL COURSE OF THE PATIENT WITH CHRONIC INFECTIOUS ARTHRITIS

If the clinical courses of one hundred patients with chronic infectious arthritis are followed until the termination of the disease, they may be divided into three distinct groups. Between 10 to 15 per cent of cases completely recover, apparently regardless of the therapeutic regimen employed. It is this group that is responsible for the wild speculations as to the value of different drugs and procedures in the treatment of the disease. These are the cases that are cured by orange juice diets, rheumatism bracelets, chiropractic adjustments, salicylate and iodide injections and similar procedures. A second group, fortunately comprising only about 10 per cent of cases, rapidly progresses to hopeless crippledom even though these patients receive the most excellent care. In these patients all therapeutic efforts fail to produce the desired results. Regardless of what is done, the progress of the disease remains unchecked and either causes early death or rapidly leaves them crippled for the remainder of life. The third group comprises the remaining 75 to 80 per cent of cases and includes the majority of persons with arthritis who come to the physician. Therapeutic efforts in this group are likely to be rewarded by a clinical improvement in a high percentage of cases. Chronic infectious arthritis in these patients may be said to be a disease that undergoes frequent spontaneous remissions and exacerbations. The physician should not be too quick to attribute an improvement in the arthritis to the particular drug or plan of therapy that was being used at the time of a remission. It is entirely possible that the disease may undergo a spontaneous remission at the particular time that a new remedy was begun. In the early stages of the disease these remissions occur frequently and tend to be more complete, that is, joint function tends more nearly to approach normal. As the disease progresses, remissions occur less frequently and are less complete. Each exacerbation in the severity of the disease leaves the joints more permanently disabled. Finally, after a variable period of time, probably averaging 15 years, the disease burns itself out and becomes inactive. The time required for the disease to run its natural course is exceedingly variable and ranges from a few months to as long as 25 years. In an average case it should be assumed that the disease will last about 15 years. After the disease runs its course the degree of function remaining in the affected joints is extremely variable and depends in great part on the amount of damage that occurred when the disease was active.

---

*Presented before the Eighth District Medical Society, Bordelonville, La., May 29, 1940.

†From the Department of Medicine, The Highland Clinic.

Joint symptoms in both treated and untreated arthritis are apt to become aggravated following menstruation, changes in the weather, on cold damp days, in the winter, following emotional disturbances, fatigue, and over-exercise of the affected joints. Too much attention should not be paid to the joint complaints from day to day.

WHAT CAN WE PROMISE THE PATIENT WITH CHRONIC INFECTIOUS ARTHRITIS?

The patient with chronic infectious arthritis should be told that in all probability the

TABLE I

DIFFERENTIAL POINTS BETWEEN ATROPHIC AND HYPERTROPHIC ARTHRITIS (HENCH)

Characteristics	Chronic Infectious Arthritis	Senescent Arthritis
Age at onset	Any age, usually below 40 yrs.	Usually 40-50 years
Body type	Any type, usually asthenic	Any type—usually obese
Prodromes (fatigue, exhaustion, anemia, weight loss, general malaise)	Usually marked	Not marked
Onset	Insidious but may be sudden	Insidious
Progression	Marked	Usually not marked
Joints affected	Many, peripheral in distribution	Few-weight bearing as a rule.
Joints spared	None may be	Elbows, wrists, knuckles, feet
Appearance	Spindle shaped due to swelling of joint and atrophy of adjacent muscles	Usually no findings except in terminal phalanges
Effusion	Common and great	Slight, if ever
Ankylosis	Common	Rare
Systemic manifestations (fever, tachycardia, low blood pressure, loss of weight, anorexia, anemia)	May be profound	Slight
Laboratory examinations		
Sedimentation rate	Increased	Normal
Filament-nonfilament count	Left shift	Normal

disease will last about 15 years and will eventually burn itself out and become inactive. Therapeutic efforts should be directed towards teaching patients how to force the arthritis to a lower level of activity so that when the disease does become inactive joint damage will be minimum and will leave the affected joints in a relatively good condition. The diseased joints will not be as good as normal joints but nevertheless will function for all practical purposes almost as well as normal joints. The word "cure" should never be used in discussing results in rheumatoid arthritis. It is much better to speak of an arrest of the process, or attempting to produce a remission, or forcing the disease to a lower level of activity. Very few of these patients experience a complete cure of the disease and it is best not to buoy up their hopes with unwarranted therapeutic claims.

In exceptional cases extraordinary results may occur in a few weeks or months; however, this is not the rule. The results of treatment in the disease should not be measured in weeks or in months. No great concern should be shown about how the patient feels today or this week but how he is improving from month to month. Improvement, if it is possible, is a slow and tedious process and is exhausting to both the patient and the physician. The patient should realize at the beginning of treatment that there is no one drug or therapeutic measure that gives constantly excellent results and the treatment to be outlined has withstood the test of time and has produced the best results in the long run. Such an explanation makes these patients more content with their slow progress and less likely to search for some other physician or cultist in the vain hope of securing a "sure cure" for their rheumatism. It is best to explain to these patients that if they do go from place to place seeking a complete cure they are losing their best chance of obtaining a remission in their disease. The longer the disease goes unchecked, the more joint damage results and the more severe the residual joint damage when the disease does burn itself out. The treatment of chronic infectious arthritis should be a long range program and is directed to extend over a number of years. Patients should be told that relatively simple measures such as diet, rest, removal of focal infection, transfusions, physical therapy, typhoid vaccine, arthrotropic vaccine, correction of postural defects, shoe corrections, joint exercises, and vitamin supplements should be tried first. After a thorough trial of these measures, additional therapeutic procedures are added if necessary. These include neoarsphenamine, gold therapy, sulphur, large doses of vitamin D, bee venom, iodides, iontophoresis, histamine, chaulmoogra oil and bilirubin. When patients realize that there is a host of "remedies" that may be used in the treatment of the disease and if one does not produce a remission another one may, confidence will be sustained. It must be impressed on them that any of these agents alone are ineffective and are likely to produce the best results in combination with the non-specific measures as outlined. The patient should be treated as a whole and not just the joints. Chronic infectious arthritis is a systemic disease and is no more a disease of the joints than typhoid fever is a disease of Peyer's patches. Efforts directed towards improving the patient's well being as a whole are most apt to be successful. The therapeutic program employed in arthritis is in this regard similar to that for tuberculosis and must of necessity be broad and comprehensive.

THERAPEUTIC MEASURES

An outline of these non-specific measures which are so valuable should be in order.

DIET

Regarding the question of what the patient with chronic arthritis should eat, Bauer has evaluated the following diets: (1) low carbohydrate; (2) reduced caloric intake; (3) altering the acid base balance of the diet; (4) omission of so-called acid fruits and vegetables; (5) allowing only one type of food substance at each meal; (6) omitting foods to which the patient is hypersensitive and (7) a low protein diet. He clearly demonstrated that there is no good evidence to support the use of any of these diets in patients with rheumatoid arthritis. The concensus of most rheumatologists today is to allow the patient with chronic infectious arthritis the same diet that would be prescribed if the disease were not present.

About 75 to 80 per cent of persons with the disease are underweight, therefore the proper diet is one calculated to make them gain in weight, that is, a high caloric diet. The majority of arthritic patients suffer from constipation; the diet should therefore contain bulk producing substances calculated to relieve this condition. Because there is much evidence of a negative vitamin balance in many cases of rheumatoid arthritis, it is suggested that a high intake of these accessory food substances should be of value. The average person with chronic infectious arthritis therefore, will require a high caloric, high vitamin, anti-constipation type of diet. If the patient is overweight and is not too exhausted and anemic the diet should be one calculated to reduce the excess weight. This can be incorporated in a low caloric, high vitamin, anti-constipation diet. Reduction in weight should be carried out more slowly than in the average obese person, carefully noting any evidence of an aggravation of symptoms by the low dietary program.

REMOVAL OF FOCI OF INFECTION

It has been most interesting to note the changing views of persons interested in arthritis on the theory of focal infection. Twenty-five years ago, when the focal infection idea came into prominence it was hailed as the long sought cure of the disease. With the passage of time many of the former advocates of the theory have lost much of the faith that they had in the procedure. Cecil, at a recent meeting of the American College of Physicians in Cleveland, remarked that he was ashamed to state how long it had been since he had referred a patient with arthritis with apparently diseased tonsils to the ear, nose and throat department for tonsillectomy. In 1927 Cecil and Archer found that the majority of 200 patients with chronic infectious arthritis were improved by the removal of foci of infection. A similar survey in 1938 in the same number of cases led to the conclusion that only a few patients were benefited by the removal of infected foci. Cecil and Angevine conclude, "The time has arrived for a complete revaluation of the focal infection theory. Undoubtedly there are cases of infectious arthritis that result from focal infection. However, as far as typical rheumatoid arthritis is concerned, it would appear that chronic focal infection plays a comparatively unimportant role." Kinsella, Bauer, Dawson, McCollum and Shapiro concur in this opinion. Removal of so-called infected foci is frequently followed by a temporary improvement in the arthritis. This, in most cases, can be attributed to the non-specific effects of the anesthetic, rest in bed, restricted diet and the traumatism incident to the operation itself. In addition, removal of supposedly infected foci is in itself a major psychotherapeutic procedure that no doubt has a beneficial psychologic effect upon the patient with rheumatism.

Probably the attitude in these cases should be to remove obvious foci of infection with the idea that the absorption of theoretical toxins from such a focus may undermine the patient's resistance and render him less able to combat the disease. The patient should understand that mere removal of an infected focus will not cure the arthritis. If foci are to be removed at all this should be done early in the disease. Later removal of infected foci cannot be expected to have a permanent beneficial effect upon the arthritis. It is interesting to note that Kinsella believes that foci may be unrelated to the arthritis and are merely an accompanying disease, another manifestation of the lowered general resistance of the patient who allows infections to develop in joints, teeth or sinuses.

REST

Rest should be physical, mental and local. The majority of patients with the disease are weak, tired, run down and exhausted. In the acute stages of the disease, absolute bed rest is necessary for a variable period of time, ranging from a few weeks to six or even eight months, depending on the severity of the case. A period of complete rest in bed early in the disease may prevent spending many months in bed later. As the disease lessens in severity, increasing periods of activity are allowed. Even when the patient is allowed a maximum amount of activity, a rest in the mid-morning and mid-afternoon and ten hours' rest at night should be insisted on. Fatigue is to be avoided at all times.

A recent study of the cause of acute exacerbations in arthritic symptoms by Cobb, Whiting and Bauer showed that emotional disturbances were apparently the exciting causes in 66 per cent of their 50 cases of chronic infectious arthritis. An effort should be made, therefore, to reduce emotional stress and strain to a minimum. Probably one of the most important factors concerned in the aggravation of symptoms is the belief of the patient that the disease carries with it a hopeless prognosis. Realization of the fact that between 75-80 per ment of patients can be definitely benefited by a proper therapeutic approach should lead to a decrease in this exciting factor. Every effort should be made to bolster morale and restore confidence without minimizing the seriousness of the disease.

Local rest of the joints is obtained by the use of light splints and plaster molded casts. The purpose of splints is primarily to prevent deformity. In the acute phases of the disease they are kept in place throughout the twenty-four hour period, except for a period of a few minutes during which the affected joints are carried through the full range of motion allowed before the appearance of pain. Splints are particularly useful at night because it is at this time that flexion deformities are most apt to begin. As the acute process subsides the splints may be removed for increasing longer periods of time.

PHYSICAL THERAPY

Physical therapy is merely an adjunct to other treatment in arthritis. Alone it does not cure arthritis and the use of this measure to the exclusion of other anti-arthritic treatment, does not produce the best results. However, it is probably the most important single procedure used in the treatment of arthritis. Its main value is to increase the blood flow to the affected area, thus aiding in the removal of waste products and hastening the absorption of inflammatory exudates. It also increases local nutrition, relaxes muscular spasm and often relieves pain. Types of physical therapy employed in arthritis are heat, massage and exercise. Heat may be applied in a number of ways as contrast baths, paraffin baths, heat lamps, infra-red lamps, electric bakers, diathermy, hot baths, cabinet baths, steam baths, mud baths and fever therapy. The valuable agent in all of these methods is heat and the form selected should be one that the patient is most likely to apply over a long period of time.

Many patients with arthritis have the delusion that joints must be exercised as much as possible in order to prevent stiffness. During the acute stages of the disease one or two gentle movements of the affected joints should be performed daily. In this manner dense adhesions and subsequent ankylosis are prevented. As the patient improves, the amount and the type of exercise is modified and increased. The golden rule governing the amount of exercise to be taken is that any motion, which is attended or followed within twenty-four hours by an increase in pain, swelling or stiffness in the exercised joint, is excessive. The proper time for both massage and exercise is after the application of one of the forms of heat previously mentioned.

FOREIGN PROTEIN THERAPY

This is one of the most valuable therapeutic agents that may be employed in the treatment of chronic infectious arthritis. The rationale of its use is that it may set into motion that vague mechanism known as the resistance of the host. Exactly how this is accomplished is unknown. Suffice to say, however, most patients with the disease will obtain symptomatic improvement following its use. In about 10 to 20 per cent of cases the improvement may be permanent; in the remaining cases the remission will persist for several weeks or months. Typhoid vaccine is the agent most frequently used for this purpose. Intravenous vaccine should not be given to individuals above the age of 50 years because of the danger of vascular thrombosis. Foreign protein therapy is best given twice a week for a total of six to eight injections. The beneficial effect of intravenous typhoid vaccine may be prolonged if it is followed by the subcutaneous injection of streptococcus vaccine (preferably on arthrotropic strain) twice weekly over a period of three months. It should be noted at this point that several months may elapse before the full beneficial effect of foreign protein therapy is evidenced.

ACCESSORY THERAPY

Three or four transfusions of 300 c.c. each should be given if the red cell count falls below 3,500,000. Following these transfusions, some readily assimilable iron preparation, such as ferrous sulphate in doses of 15 to 20 grains daily, is useful. This drug is also indicated in milder degrees of anemia.

Cod liver oil, one ounce two to three times a day, two brewers' yeast tablets three times daily, cevitamic acid 100 mg. twice a day, are additional measures calculated to accomplish the vague purpose of increasing the resistance. Neoarsphenamine 0.3 gram once or twice weekly for ten doses may be used on purely empirical grounds to accomplish the same purpose. Insulin is frequently useful in patients who complain of anorexia.

In all cases attention must be paid to correct posture, flat or pronated feet. In flattening of the longitudinal arch of the feet the use of felt pads moulded to conform to the arch of the foot affords much comfort. In pronated feet the Thomas heel may be employed. Patients having painful metatarso-phalangeal joints are often benefited by having transverse metatarsal bars placed on the soles of the shoes. Proper fitting shoes with sensible heels should be insisted on. Ambulatory arthritics with painful knees frequently obtain much relief following the proper application of a three inch elastic bandage to the affected joints.

These more or less non-specific measures should be employed studiously over a period ranging one to six months, depending upon the response of the patient. At the end of this time both objective and subjective improvement should be evaluated and if a remission by suitable degree has not been obtained, one is justified in using one of the many less reliable procedures. These include the use of gold, bee venom, chaulmoogra oil, massive doses of vitamin D and fever therapy. When one of this last named group of therapeutic agents is used the former non-specific measures should not be abandoned but should be continued in addition to those more recently recommended. A combination of procedures is more likely to induce a remission in the activity of the disease and maintain it than any single measure that is now known.

SUMMARY

There is no single remedial agent that is constantly effective in the treatment of chronic infectious arthritis. Therapeutic measures, each of which alone has but little value, when combined frequently induce and maintain satisfactory remissions in the activity of the disease. The treatment of this disease should be a long range program, so arranged as to be conducted over a period of years. It should be on a broad and comprehensive basis similar to that employed in pulmonary tuberculosis. Therapeutic efforts directed towards improving the general physical condition of the patient are most likely to be successful in the largest number of cases.

BIBLIOGRAPHY

1. Bauer, Walter: What should a patient with arthritis eat? J. A. M. A., 104:1, 1935.

2. Cecil, R. L., and Archer, B. H.: Classification and treatment of chronic arthritis, J. A. M. A., 37:741, 1926.

3. Cecil, R. L.: Medical treatment of chronic arthritis. J. A. M. A., 103:1583, 1934.

4. Cecil, R. L., and Angevine, D. M.: Clinical and experimental observations on focal infection with analysis of 200 cases of rheumatoid arthritis, Ann. Int. Med., 12:577, 1938.

5. Comroe, B. I.: Arthritis and Allied Conditions, Philadelphia, Lea and Febiger, 1940.

6. Cobb, S., Bauer, W., and Whiting, I.: Environmental factors in rheumatoid arthritis; study of relationship between the onset and exacerbations of arthritis and emotional or environment factors, J. A. M. A., 113:668, 1939.

7. Hench, P. S.: Acute and Chronic Arthritis, Nelson Loose Leaf Surgery, 1935, pp. 101-175L.

8. Hench, P. S., Bauer, Walter, Dawson, M. H., Hall,

Francis, Holbrook, W. P., Key, J. A., and McEwen, Currier: The problem of "rheumatism" and arthritis. Review of American and English literature for 1938 (Sixth Rheumatism Review) Ann. Int. Med., 13:1837, 1940.

9. Krusen, F. H.: Physical therapy in arthritis, New England J. M., 220:463, 1939.

10. Margolis, H. M., and Eisenstein, V. W.: Some specific measures in the treatment of rheumatoid arthritis, J. A. M. A., 114:1429, 1940.

11. Reimann, H. A., and Havens, W. P.: Focal infection and systemic disease: A critical appraisal, J. A. M. A., 114:1, 1940.

CLINICAL AND HEMATOLOGIC STUDIES IN SOME OF THE BLOOD DYSCRASIAS*

CARLO J. TRIPOLI, M. D.†
AND
DAVID E. FADER, M. D.†
NEW ORLEANS

One of the most interesting and certainly one of the most perplexing groups of diseases is the one usually referred to as the blood dyscrasias. Their increasing incidence can be explained in two ways. There is an apparent increase due to their more frequent recognition because of improved diagnostic facilities. There is a real increase, however, as the result of a more general use of chemical therapeutic agents in the management of the infectious diseases.

The importance of recognizing the blood dyscrasias in general practice is emphasized by the dramatic results obtained by specific therapy, particularly in the anemias. Yet few diseases present clinical pictures which are more bizarre, especially as regards the onset and clinical features of the early stages. Furthermore, many cases in which the history and physical findings are the same will prove to be entirely different hematologically, while identical hematologic pictures may be associated, at the outset, with clinical pictures varying from that of a mild infectious disease to that of a profound toxemia. Generally speaking, there are two important clinical features in the acute cases, necrotic ulceration, and persistent oozing or actual bleeding from the mucous membranes. Their presence in any given case simulating an acute infectious disease should at once arouse the suspicion that one is dealing with a primary disease of the blood or of the blood-forming organs.

The cases which are reported in this paper have been selected to illustrate certain clinical and hematologic observations which are important in various types of blood dyscrasia.

ACUTE INFECTIOUS MONONUCLEOSIS

Case 1. L.L., a white male three years of age, was admitted to the contagious unit of Charity Hospital of Louisiana at New Orleans, September 25, 1938, with a diagnosis of gonorrheal ophthalmia, which was later confirmed bacteriologically. The patient was afebrile and looked healthy, and the physical findings, except for the eyes, were essentially negative. Urinalysis and the blood Wassermann reaction were both negative.

Treatment for the ocular condition was instituted and the course was without incident until October 20 (25 days after admission), when the temperature rose to 101° F. Examination showed a right cervical lymphadenitis, the nodes being firm and slightly tender, but not painful. The blood examination two days later (October 22) revealed 34,000 white cells with 71 per cent polymorphonuclear cells, 25 per cent lymphocytes, 1 per cent monocytes, and 3 per cent eosinophils. Roentgenologic examination of the chest was negative. The adenopathy was treated with warm moist compresses, but the low grade fever persisted.

November 4 a second blood study revealed 4,800,000 red cells, 85 per cent hemoglobin, 121,000 white cells, 79 per cent lymphocytes, and 16 per cent polymorphonuclear cells. Four days later (November 8) another blood study revealed 3,900,000 red cells, 82 per cent hemoglobin (12 gm.), hematocrit 34, and 128,000 white cells, practically all of which were mature small lymphocytes. The mean corpuscular volume was 87, the mean corpuscular hemoglobin 30, and the platelets 300,000. Repeated blood studies revealed little deviation from this hematologic picture. Urinalysis was consistently negative except for a trace of albumin.

November 16, 27 days after the initial rise, the temperature returned to normal and the lymphadenopathy subsided, though the blood picture remained practically unchanged. The spleen and liver were not palpable at any time during the illness. The patient was discharged with a diagnosis of gonorrheal ophthalmia, acute infectious mononucleosis, and possibly lymphatic leukemia.

December 7, 1938, the child was brought back to the hospital for a check-up. At this time the blood picture was within normal range, showing 7,900 white cells, 71 per cent polymorphonuclear leukocytes, and 26 per cent lymphocytes. He was apparently perfectly well. He was also perfectly well when he was readmitted to the hospital December 19, for the treatment of a recurrence of the ophthalmia. On this occasion, as well as on March 22, 1939, when he entered the hospital with measles, hematologic studies revealed no abnormalities. On the last admission the heterophil antibody reaction was negative. The final diagnosis was probably acute infectious mononucleosis.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the Departments of Medicine of the School of Medicine and the Graduate School of Medicine of Louisiana State University, and from Hotel Dieu, Touro Infirmary, and Charity Hospital of Louisiana at New Orleans.

COMMENT

This case illustrates the difficulty in the differential diagnosis of lymphatic leukemia, acute mononucleosis, and pertussis. The latter disease was not seriously considered because of the absence of any respiratory symptoms of any kind. The diagnosis of acute lymphatic leukemia could not be substantiated because the child appeared quite well throughout his illness; there was no anemia, and ulceration, bleeding, splenomegaly and generalized lymphadenopathy were also absent.

In view of the findings, acute infectious mononucleosis seemed the most probable diagnosis. The heterophil antibody reaction[1], which is a most important diagnostic procedure in this disease, was not done at the time of the acute illness and the negative reaction three months later is not considered of great significance because of the time which had elapsed.

ALEUKEMIC MYELOID LEUKEMIA

Case 2. C.D., a white female 15 years of age, was admitted to Hotel Dieu service of Dr. J. E. Landry, November 4, 1937, complaining of pallor, weakness, and bleeding gums. She had been treated for the latter condition by a dentist for several weeks before admission. She had become progressively weaker and paler until a week before admission, when the gums became very sore and persistent bleeding occurred.

The temperature was 100.6° F., the pulse rate 120, and the respiratory rate 28 per minute. The blood pressure was 110/50. The patient weighed 102 pounds and was fairly well developed and nourished, but was pale, restless, and apparently acutely ill. Physical examination was essentially negative except for continuous oozing from the gingival membranes and the vagina. There was no lymphadenopathy, and the liver and spleen were not palpable.

Urinalysis was negative except for a faint trace of albumin and many red blood cells. The blood chemistry was within normal limits. Gastric analysis showed hydrochloric acid 45° and total acidity 65°. Blood study revealed 1,400,000 red blood cells, 30-35 per cent hemoglobin, 2,000 white blood cells, 82 per cent lymphocytes, 17 per cent neutrophils, and 1 per cent myelocytes. Anisocytosis, poikilocytosis, polychromatophilia and basophilic stippling were present. Following a transfusion of 300 c. c. of blood the day after admission (November 5) the white blood cell count was 9,000. Examinations for malaria revealed no plasmodia. The fragility test was normal. Roentgenologic examination of the chest, November 7, was negative except for the presence of bilateral cervical ribs.

Five days after admission (November 9) clinical anemia was more marked and the white blood cell count was 8,000. For the first time 13 per cent of the white cells were myeloblasts. Twenty-one days after admission (November 25) the white blood cell count was 7,750, with 20 per cent myeloblasts, 44 per cent myelocytes, 28 per cent lymphocytes, and 8 per cent mature neutrophils.

A diagnosis was made of aleukemic leukemia of the myeloid type. The patient continued to run a septic temperature varying from 101° to 103° F., with elevations to 104.5° F. following the five blood transfusions which were given. Other therapy included intramuscular injections of liver extract, pentnucleotide, and vitamin C, in addition to routine treatment. Death occurred November 29, 25 days after admission. Bone marrow aspiration was done immediately after death. The reddish-gray marrow proved on microscopic examination to be acute myeloid leukemia.

COMMENT

This case is an excellent illustration of the difficulty in differential diagnosis between aleukemic leukemia, which is merely an early acute leukemia before manifestations are present in the peripheral blood stream, and agranulocytosis. The clinical picture and relative neutropenia in the peripheral blood would certainly suggest agranulocytosis, but the diagnosis of the aleukemic phase of an acute myeloid leukemia would seem to be substantiated by the rapidly developing thrombocytopenia and anemia in the presence of increasing numbers of embryonic white blood cells of the granular series in the peripheral circulation. A specimen of bone marrow obtained by sternal puncture would have furnished the necessary confirmatory evidence in this case, but permission for the procedure could not be obtained during life.

ACUTE MYELOID LEUKEMIA

Case 3. Mrs. O. R., a white female 38 years of age, was admitted to Hotel Dieu, service of Dr. Val Fuchs, October 10, 1938, complaining of sore throat and pain on swallowing. The illness had begun a week before admission as a mild sore throat and fever, associated with dysphagia, which had become progressively worse. The onset of illness had coincided with the onset of menstruation, and the flow had become excessive. The history was otherwise irrelevant.

The temperature on admission was 102°F., the pulse rate 120 and the respiratory rate 25 per minute. The blood pressure was 100/50. Physical examination revealed a well developed and well nourished white female who was very toxic and apparently acutely ill. The breath was foul. The gingival and oral mucous membranes were pale, and a fragile, spongy, bleeding mass, about 2 cm. in diameter, was seen on the left side of the roof of the mouth. The heart and lungs revealed no abnormalities, and the spleen was not palpable. The menstrual flow was excessive.

Urinalysis (catheterized specimen) revealed 2 plus albumin and much blood. The blood chemistry was within normal range. Blood study revealed 2,000,000 red cells, 29,000 white cells, 68 per cent myeloblasts and myelocytes, 16 per cent juvenile cells and 1 per cent stab cells. Direct smear and culture of the throat were positive for *C. diphtheriae.*

Sulfanilamide in adequate doses was begun, and 20,000 units of antidiphtheritic serum was administered. The patient also received five transfusions, and was given neosalvarsan and deep x-ray therapy over the spleen and the long bones.

Blood study November 3 (24 days after admission) revealed 1,790,000 red cells, 162,250 white cells, and 90 per cent myeloblasts. Repeated blood cultures were negative.

All therapeutic measures were without benefit and the patient died November 4. Autopsy examination, which was limited to aspiration of the bone marrow, confirmed the diagnosis of acute myeloid leukemia. The final diagnosis was acute myeloid leukemia and probable diphtheritic carrier.

COMMENT

The point of chief interest in this case is perhaps the similarity of the clinical picture to that of any other sore throat which might be seen in general practice. It is particularly significant that diphtheria organisms were present in large numbers in the lesion. The acute infection undoubtedly could account for the severity of the symptoms, but the profound toxemia and spreading necrotic ulceration strongly suggested the lesion to be one of leukemic origin. The suspicion was promptly confirmed by the hematologic studies made at this time.

The question is frequently asked whether x-ray therapy could possibly change an acute leukemia into one of chronic character, and thus prolong life. This measure was employed in this case, in addition to transfusions, but was entirely without effect.

MACROCYTIC HYPERCHROMIC ANEMIA

Case 4. A. R., a white female 52 years of age, was admitted to Charity Hospital of Louisiana January 2, 1939, complaining of weakness, diarrhea, and shortness of breath. For the past six years she had had recurrent attacks of diarrhea. The stools had been formed and grayish in color until quite recently, when they had become offensive in odor and were described by the patient as "foamy like beer." Her skin had become very pale and she said that her tongue was sore and "red as a beet." For the past year she had had cramping pains in her legs, dizzy spells, and dyspnea on exertion. She had lost 40 pounds during the past few years. The remainder of the history was irrelevant, except that she had become completely gray at the age of 40 years and had reached the menopause at the age of 45 years.

The temperature on admission was 98.6°F., the pulse rate 86, and the respiratory rate 18 per minute. The blood pressure was 110/70. Physical examination revealed an emaciated, ambulatory individual who looked at least 80 years of age. Although she was chronically ill, she was alert and cooperative. She weighed 82 pounds. The skin was dry, thin, wrinkled and lemon-colored. The pupils reacted to light and accommodation. The tongue was red, smooth and atrophic. Examination of the heart and lungs revealed nothing abnormal. The abdomen was distended and of the "pot-belly" type. The reflexes were generally diminished but symmetrical. The tentative diagnosis was sprue, pituitary cachexia, and premature senility.

TABLE I

Day	5th	10th	27th	43rd	59th
Hgb. gms.	3.8	5.5	10	11	
WBC	6,200	4,400	7,100	4,500	
RBC	1.1	1.3	2.87	2.8	3.1
Hmtcr.	12	15	30	27	
M.C.V.	109	115	105	98	
M.C.H.	34	42	35	40	
Retic.%	2.4	12*			

*After administration of 5 c.c. liver extract daily. Note reticulocyte response.

The blood Wassermann reaction was negative. Urinalysis revealed urobilinogen 4 plus, urobilin, and traces of sugar and albumin. Three consecutive stools were gray, foamy and greasy, and contained many fatty acid crystals and some mucous and pus, but no blood.

The icterus index was 10. Blood chemistry studies revealed 7.7 mg. of urea nitrogen, 88 mg. of glucose, 6 mg. of calcium, and 2.37 mg. of phosphorus per 100 c. c. Gastric analysis revealed free hydrochloric acid 15° and total acidity 25°. After the administration of histamine the values were respectively 52° and 79°. Neurologic consultation one week after admission resulted in a diagnosis of posterolateral sclerosis secondary to anemia.

Agglutinations for bacillary dysentery were negative. Castellani's rhamnose test (4 gm. orally) showed no sugar in the urine during a six hour period.

Insulin hypersensitivity test January 12 (10 days after admission) was markedly positive following injection of 10 units of insulin. The fasting blood sugar was 88 mg. per 100 c. c. At 30, 60 and 90 minutes after the injection the blood sugar level was too low to read. At the end of two hours the blood sugar was 69 mg. per 100 c. c. The test was repeated January 28 with approximately the same results. February 2 the fasting blood sugar was 90 mg. per 100 c. c. of blood. Thirty minutes after the ingestion of 100 gms. of glucose it was 111, and at 60 minutes and 120 minutes it was respectively 95 and 90 mg. per 100 c. c. The glucose tolerance test was repeated March 6, with simiiar results.

Roentgenologic examination of the long bones showed no abnormalities. A basal metabolic rate determination one week after admission was plus 22, and 18 days later was plus 31.

January 22 (20 days after admission) sternal puncture revealed active marrow with definite erythroid cell stimulation. The normoblasts were seen in different stages of development, although no megaloblasts were identified. There were many myelocytes and premyelocytes.

Two months after admission and after parenteral liver extract therapy the patient weighed 115 pounds, a gain of 33 pounds. She felt much stronger, the diarrhea had subsided, the red blood cell count had risen from 1,100,000 to 3,100,100, and she seemed entirely recovered.

The final diagnosis was macrocytic hyperchromic anemia (sprue) probably due to lack of absorption of the intrinsic factor of the stomach.

COMMENT

The diagnosis seemed to be confirmed in this case not only by the presence of anemia and its response to parenteral liver extract, but also by the presence of fatty, foamy diarrheal stools and of central nervous system lesions. The lack of absorptive powers on the part of the duodenum was demonstrated by Castellani's rhamnose test.

Just what mechanism, other than sprue, produced the syndrome present in this patient is an interesting question. Atrophic cirrhosis of the liver, as in Simmonds' disease, might perhaps explain it, but no demonstrative evidence of this state could be elicited, and the result of the glucose tolerance tests and the absence of clinical jaundice and of ascites tended to refute its possible existence.

An interesting comment regarding the apparent anterior pituitary deficiency in this case has been made by Bauer[2]. He presented evidence to show that the deficiency syndrome resulted from a lack of absorptive powers on the part of the duodenum which resulted in a starvation process despite the oral administration of food.

APLASTIC ANEMIA

Case 5. Mrs. C. A., a white female, 28 years of age, was admitted to Touro Infirmary, service of Dr. J. D. Rives, November 24, 1938, complaining of profuse nose bleed, excessive menstruation, and the appearance of "blood spots" all over her body. Six months before admission she began to grow progressively weaker and to suffer from frequent fainting spells. At the same time the mild menorrhagia and anemia from which she had suffered for four or five years became considerably worse. Menstruation occurred every 21 days and an excessive flow lasted from seven to nine days. All treatment of the anemia, including the use of liver extract, was without avail, though slight temporary improvement followed several blood transfusions two months before admission. Two days before she entered the hospital bleeding from the mouth began to occur and the "blood spots" mentioned developed beneath the skin. The previous history revealed no exposure to drugs or x-ray therapy, or any other possible cause of the illness.

The temperature on admission was 101°F., the pulse rate 110 and the respiratory rate 24 per minute. The blood pressure was 110/60. Physical examination revealed a white female who was very ill and apprehensive and whose skin had an ashen pallor. There was a constant slow oozing of blood from the nose, gums, and oral mucous membranes. The chest findings were negative except for the presence of a tachycardia. The liver and spleen were not palpable. There was a profuse oozing of blood from the vagina. There were numerous purpuric spots over the extremities. The reflexes were normal and no lymphadenopathy was present.

The tentative diagnosis was purpura hemorrhagica. The patient was given a blood transfusion and 2000 units of theelin intramuscularly. Morphine was also administered.

Urinalysis (catheterized specimen) revealed 1 plus albumin and many red blood cells. Examination of the stools was negative except for 4 plus occult blood. The gastric analysis revealed no free hydrochloric acid and total acidity of 15°; gross and occult blood was present. Blood study showed 2,620,000 red cells, 50 per cent hemoglobin, 4,200 white cells, 48 per cent neutrophils, and 52 per cent lymphocytes. The platelet count was 10,000 per cu. mm. The bleeding time was over two hours. Clot reaction did not occur. The tourniquet test was positive.

Sternal puncture November 29 (five days after admission) revealed 8,000-10,000 nucleated cells, 6 per cent granulocytes, 29 per cent lymphocytes, 2-4 per cent reticulocytes, 42 per cent nucleated red blood cells, and markedly decreased platelets.

A diagnosis of thrombocytopenic purpura, due to aplastic anemia, was made. The patient was treated with 16 transfusions of whole blood, vitamins D and C, koagmin, coagulin, calcium gluconate, thromboplastin, liver extract, pentnucleotide, snake venom, gynergen, and deep x-ray over the pelvis. Although no beneficial effect was expected from it, splenectomy was performed December 11, 18 days after admission. The patient continued to bleed after operation and died December 22, 1938. Postmortem confirmed the diagnosis of aplastic anemia and thrombocytopenic purpura.

COMMENT

This case is of unusual interest because of the lack of any factor to which the fatty degeneration of the bone marrow could be attributed. That the bone marrow changes represent a primary pathologic phenomenon must be granted. Such a phenomenon, however, is most unusual. Although all therapeutic measures were carried out to an adequate degree over a sufficiently long period of time, all were without benefit, with the possible exception of the transfusions.

A recent report by Osgood and his associates[3] concerns an attempt at transfusion with the addition of bone marrow in a case of aplastic anemia. Although the results in their particular case were not good, the method suggests possibilities for the future. Since no known method of treatment is of any permanent benefit in the so-called primary aplastic anemias, it may be that bone marrow transplantation from a healthy, normal individual, of identical type, would be worthy of future trial.

SUMMARY AND CONCLUSIONS

1. The apparently increasing incidence of diseases of the blood and of the blood-forming organs seems particularly important in relation to the advent and increasing use of specific chemotherapy in the acute infectious diseases.

2. It is important that routine hematologic examinations be undertaken in all cases of necrotic ulceration or persistent oozing of blood from the mucous membranes.

3. Five cases of blood dyscrasia are reported and commented upon in this communication: (1) Acute infectious mononucleosis simulating chronic lymphatic leukemia; (2) aleukemic leukemia simulating agranulocytosis (agranulocytic angina); (3) acute myeloid leukemia simulating necrotic ulceration of the palate caused by diphtheria and possibly Vincent's organisms; (4) sprue with anterior pituitary deficiency simulating pernicious anemia and adrenal insufficiency or Simmonds' disease; (5) idiopathic aplastic anemia simulating acute thrombocytopenic purpura.

4. Important diagnostic information can be secured in cases of suspected blood dyscrasia by biopsy studies of sternal marrow, in addition to routine hematologic examinations.

Note: Our thanks are due to Drs. Jerome E. Landry, Val Fuchs, and J. D. Rives for permission to report three of the cases in this group.

REFERENCES

1. Downey, H.: Handbook of Hematology, v. IV. Paul B. Hoeber, Inc., New York, 1938.

2. Bauer, J.: Endocrine aspects of sprue. Their relation to the pituitary syndrome in anorexia nervosa, J. Trop. Med. & Hyg., 42:245, 1939.

3. Osgood, E., Riddle, M. C., and Mathews, T. J.: Aplastic anemia treated with daily transfusions and intravenous marrow; case report. Ann Int. Med., 13:357, 1939.

DISCUSSION

Dr. John H. Musser (New Orleans): I want to stress the importance of the examination of the throat, and more particularly, the importance of making blood counts in people who show abnormal conditions of the throat. Dr. Tripoli has pointed out that mucous membrane lesions may occur anywhere with peculiar blood pictures and blood dyscrasias. It is perfectly obvious that the easiest membrane to observe is the mucous membrane of the mouth and throat. Illustrative of the fact that it is of a certain amount of importance is an incident which occurred at Charity Hospital some few years ago. I went on my vacation, and just prior to going I talked about this matter with Dr. Weilbaecher, who was taking over the care of the contagious ward as chief house officer, and he said that he would insist that a leukocyte count be made on every child coming in who had Vincent's angina, or ulceronecrotic lesions of the mouth, or had an acute inflammatory condition of the mouth. And in six weeks he had collected seven cases of children who had lesions of one type or another, and whose fundamental condition was due to their abnormal blood, or blood elements. A few years before that, I had written a paper and summarized conditions which are associated with alterations in the leukocytic picture and associated with mouth conditions. If you do not mind, I would like to review that briefly.

First, there are mouth conditions which are associated with polymorphonuclear increase. These conditions are quite common. Those showing a blood reaction include such conditions as streptococcic sore throat, acute tonsillitis, or quinsy. I want to point out as of diagnostic importance that in diphtheria the large mononuclears are increased proportionately, much more so than you would expect with hyperleukocytosis.

The second is mononuclear increase. Here, there is infectious mononucleosis, which Dr. Tripoli illustrated, and a condition which is almost invariably associated with sore throat. As a matter of fact, sore throat is an ever present complaint in most of these younger people who have infectious mononucleosis.

Third, there is leukopenia with hypogranulocytosis. Here there is agranulocytic angina, which is, of course, associated with a very definite throat picture, and then occasional cases of Vincent's angina—Vincent's angina which I would like to speak of as systemic, in contradistinction to local Vincent's angina. At times, there is local throat involvement when there is aplastic anemia, and then occasionally, with severe sepsis it is possible to have lesions of the throat and to have leukopenia and hypogranulocytosis.

Fourth, is leukocytosis and relative hypogranulocytosis. This is the picture seen at times in acute leukemia, for example, and here again there is this particular picture sometimes produced in severe oral sepsis and whooping cough. The late Dr. Quinn of Shreveport reported a patient who had a horrible mouth, yet when the case came to autopsy they found nothing to explain the leukocytosis of over 40,000 cells. I want to point out that there is an abnormal blood picture in whooping cough, and sometimes very pronounced alteration takes place. Some years ago Dr. Krumbhaar wrote a paper on leukemoid reactions in various types of disease, and whooping cough was a splendid example. It is not necessary to point out to you that throat involvement in whooping cough is quite uncommon, but on the other hand, the child does at times have a sore throat from coughing. The particular case most vivid in my mind was one in Charity Hospital. This patient had a leukocyte count of over 120,000, and the child was kept on the ward for many weeks, and gradually after the subsidence of the whooping cough, the blood count came down to normal.

I would like to stress again that given a patient who has a sore mouth, a sore throat, do not dismiss the diagnosis perfunctorily as some local condition such as Vincent's angina. It happens so frequently in acute leukemia, that a leukocyte count, a total and differential, is made and then sometimes you will be surprised at the result of the hematologic study.

Dr. Joseph Stasney (New Orleans): I wish to confirm Dr. Musser's remarks as to the importance of the leukocyte count in blood dyscrasias and to add certain points as to the importance of the morphologic study of the individual white cell. Diagnosis is likely to be very difficult if only the number of white cells be considered. It is known that there is a normal fluctuation in the number of the leukocytes, and Doan and others have demonstrated that there is also a normal variation in the various types of white blood cells. These normal variations will naturally be exaggerated in pathologic conditions.

A blood dyscrasia is not primarily a disease of the blood itself but of the blood-forming organs. The blood merely mirrors the changes in them. In this connection Gullen said that in the future the study of the morphology of the individual blood cells will probably be as important as auscultation of the heart is in other diseases. Leukemia can easily be recognized by a study of the morphology of individual white blood cells; the number of the cells is unimportant, but their quality is very important.

I should also like to emphasize the importance of bone marrow puncture in the diagnosis of blood dyscrasias. For diagnostic purposes the sternal bone marrow is most readily available, and sternal puncture is not a difficult procedure.

The question arises, however, as to whether marrow found in the sternum is representative of the entire marrow, especially in view of the fact, which many authors have pointed out, that the cellularity of the marrow differs enormously. It is known that there are two kinds of bone marrow, red or cellular and yellow or fatty. Red marrow is found in the flat bones and fatty marrow in the lower two-thirds of the long bones. In the fatty marrow, however, are scattered foci composed of hematopoietic cells, which are seemingly active and which are surrounded by fatty tissue. Even though it be granted that the cellularity varies greatly according to the site from which the marrow is secured, the trend of the differentiation is the same in any given marrow specimen. In studies made at the Mayo Clinic, Dr. Higgins and I found that if the sternum showed erythrocytic stimulation, the same process could be demonstrated in marrow samples obtained from the femur, the rib, or any other bony structure.

Although sternal puncture is the easiest procedure for examination of the bone marrow, the admixture of peripheral blood, unfortunately, cannot be avoided. Surgical exposure of the marrow is another possible method, and undoubtedly excising a specimen, making a tissue preparation and studying the cells furnish more accurate results. On the other hand, simple sternal puncture can be repeated many times while surgical procedures cannot be repeated more than once or twice.

In conclusion, I should like to emphasize again the importance of careful morphologic studies which will help us to understand the correct nature of the various blood dyscrasias.

Dr. Allan Eustis (New Orleans): This paper has been most interesting to me. I recall a case I saw with Dr. Trepagnier, with typical agranulocytosis. The reason that I question that diagnosis now, is it was before the time of pentnucleotide.

She recovered with salvarsan and numerous transfusions. She was a friend of Dr. Elizabeth Bass, and six months later, Dr. Bass telephoned me the patient had a leukemia, white cells 150,000. I do not remember the differential count. Dr. Bass watched her for three months when she went to Boston and died there of typical leukemia. Was it not possible that she had acute aleukemic leukemia and not agranulocytosis?

Dr. Carlo J. Tripoli (In closing): The remarks made by Dr. Musser regarding the clinical features in these diseases and the importance of routine hematologic examination are both valuable and timely.

Further, the value of diagnostic sternal puncture cannot be overemphasized. The importance of sternal puncture is obvious. In a case of suspected blood dyscrasia where the blood picture results in no conclusive evidence, bone marrow studies will often reveal the correct diagnosis. The diagnostic information obtained by sternal puncture, the simplicity of the procedure, the lack of danger, all recommend it.

In regard to Dr. Eustis' case, sternal marrow studies at the time when the blood studies were inconclusive, would have proved the case to be one of leukemia without peripheral blood findings as is frequently seen in aleukemic leukemia during the early stages of the disease.

The use of x-ray therapy in two patients with acute leukemia proved ineffective.

Bone marrow transplantations in the treatment of primary aplastic anemia have been unsuccessful so far.

THE APPLICATION AND INTERPRETATION OF THE FRIEDMAN MODIFICATION OF THE ASCHHEIM-ZONDEK TEST*

A. V. FRIEDRICHS, M. D.
NEW ORLEANS

While the observations herein presented deal with the application and interpretation of results, obtained by employing the Friedman modification, it is felt that the discovery of Aschheim and Zondek[1] must be duly emphasized. Too often, unfortunately, originators or discoverers fall into oblivion because of some simpler or more popular changes in the original discovery made by follow-up workers. This assertion is not meant to deprecate the value of simplification through which such tests can be much more readily applied. On the contrary, such augmentations serve to place the test upon a more valuable basis. Friedman[2, 3] primarily noted the effects of urine of pregnant women upon the ovary of rabbits. This observation was later applied, from the practical standpoint by Friedman and Lapham,[4] in 125 instances. It is to be recalled that prior to the thorough and accurate observation, discovered by Aschheim and Zondek in 1928, numerous other procedures, including those of Abderhalden, Allen and Doisy,[5] Siddall,[6] Crew,[7] and Kanter, Bauer and Klawans,[8] had been found either too technical or too inaccurate to be of practical use. It is especially because of this latter factor, that is practicability, that the test as applied by Friedman and Lapham has become so generally employed.

Since the Aschheim-Zondek test for pregnancy has proved conclusively, over these many years, to be an accurate and valuable procedure, it is but just that their names be emphasized, independent of the various modifications that have subsequently arisen. For an excellent resumé of the literature, in addition to other important factors concerned herein, the publication of Stadiem[9] is very worthy of reference.

In connection with the application of this very valuable test, we are confronted with the factors which bring about its production. It is not intended herein to delve into extensive detail of the various hormonal substances concerned, but it does seem pertinent to refer briefly to the varieties that occur in regard to both the ovary and the anterior lobe of the pituitary body. These may be primarily divided into the estrogenic and gonadotropic substances.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, April 24, 1940, ta New Orleans.

In regard to the influence of the pituitary gland upon ovulation, the report of Pencharz, Cole and Goss, is of much interest. In their observations upon hypophysectomized rats, they noted that the injection of highly purified extracts of pregnant mare serum produced, grossly, many ripe follicles with some corpora lutea. Microscopic study confirmed these findings. At the same time, they noted that injection into male rats showed strong interstitial cell response as indicated by the response of the accessory organs. Whether or not these experiments have any bearing on the human species is not discussed.

It is to be emphasized that those substances recognized as definite factors in the production of estrus or menstruation, while constantly increasing with development of pregnancy, reaching as many as 20,000 mouse units at the time of delivery, are, however, not responsible for the test reactions produced in animal ovaries. On the other hand, the gonadotropic substances, that appear within a few days after the missed menstruation due to pregnancy, are present in the blood and urine in large amounts. It was upon this observation that Aschheim and Zondek formulated their very valuable test for pregnancy.

The principle of the test is the demonstration of the unusual increase of the gonadotropic substance. Using the infantile mouse, Aschheim and Zondek[10] found three definite changes in the ovaries of these animals: (1) Large mature follicles, which are capable of producing an estrogenic hormone: (2) numerous corpora lutea which either enclose the ovum or result from ruptured follicles; and (3) large blood-containing follicles. Microscopically, they differentiated three definite reactions: (1) Follicular maturation, that is formation of large follicles with secondary estrus; (2) hemorrhage in the follicles; (3) formation of corpora lutea with imprisonment of the ovum. The first reaction is considered physiologic, while the second and third are pathologic.

In connection with the various hormones that have been recounted, it is of interest that among these there is no one specific substance for pregnancy. It becomes a fortunate fact, however, that because of the marked increment of certain of the hormones excreted in the urine in pregnancy, such quantities are capable of registering very definite and specific results upon animals. To be more explicit then, the small amounts of such substances that may occur normally in both male and female urines are insufficient to bring about reactionary changes in the ovaries of the animals. The test, therefore, is definitely based upon a quantitative rather than a specific qualitative factor. For example, in the non-pregnant female, the urine will show 16 rat units per liter of the gonad stimulating substance while in pregnancy from 5,000 to 20,000 or more units per liter may be found throughout the entire term. It is of further interest that these substances disappear in from 48 to 96 hours after birth, except wherein chorionic tissue has remained connected with the uterine wall.

It is to be remembered that it is the exchange of material between the uterine circulation and the chorionic epithelial tissue that makes possible the urinary excretion of a sufficient volumetric amount to produce the test.

APPLICATION AND INTERPRETATION

The application of the test as herein reported does not represent the scientific observations upon positive results obtained in definite pregnant women as contrasted to those known to be negative. It deals rather with the following topics:

1. *"Problem Cases."* By such is meant the very early instances in which a missed menstruation has confronted the physician for interpretation as to whether or not pregnancy exists. It is quite surprising in private practice how many such instances of legitimate anxiety aside from those necessarily alarmed illegitimately in reality, present themselves. From the legitimate aspect, numerous married women demand definite information as to possible pregnancy even after the first missed menses. This they do for various reasons. Either they are hopeful they are not pregnant, either for no good, or good reason, such as ill health or

many children, or, occasionally, they are anxious to have a child. From the illegitimate standpoint, it can naturally be appreciated that it is most important to the woman or both the man and the woman to ascertain with all possible degree of certainty as to whether or not pregnancy exists. Sometimes a hasty marriage, from an overzealous courtship, ensues and at other times the prospective mother disappears, after the reassurance of definite pregnancy, not to be seen further by the physician unless subsequent complications arise; in other words, an abortion has been performed. Confronted with all of these very serious problems, even the most skilled obstetrician is quite inclined to be noncommittal at such an early period and naturally the employment of an accurate test serves a most useful and highly satisfactory purpose. The vast majority of tests have been derived from this category of problem cases in contrast to that type of case presented in hospital observation.

2. *Extra-uterine pregnancy.* Needless to say, wherein an extra-uterine pregnancy has brought about an abdominal crisis with an associated hemorrhage and some shock, no such test is indicated; in fact, delay by such a test is to be condemned. If, however, the clinical aspect suggests such a possibility, this test at once offers a valuable aid. It is to be noted that only wherein the living chorionic epithelium still exists, will a positive result be produced. It is really such a type of case wherein such information is more important inasmuch as rupture and hemorrhage from continual growth will eventuate. On the other hand, when intratubal hemorrhage and pressure have brought about the destruction of the abnormal pregnancy factors, comparatively little danger threatens the patient. Such occurrences, of course, will yield a negative result. With these facts in mind, therefore, if there has been primarily registered a positive finding with no intervention and subsequently a negative result has been obtained, it indicates the tubal pregnancy has discontinued growth. Of course, it is only a subsequent operative procedure that determines the presence of an extinct tubal pregnancy.

3. *Miscarriage.* In the instances where hemorrhage has occurred during an early pregnancy the question of whether an actual miscarriage or termination of pregnancy has eventuated occasionally presents itself. This is particularly applicable when the expelled specimen is not available for a proper microscopic examination. I have had the occasion to obtain positives before such bleeding and subsequently to obtain in some instances negative results and in still others positive results. The deductions drawn were, in the instances of the negative results, that miscarriage had occurred; in others that pregnancy had continued. These findings were confirmed by the eventualities of the cases.

4. *Fetal viability.* Among the tested cases of our series, there has been a small group wherein the question of fetal death has arisen. In one of these instances, the obstetrician considered that the fetus had died, and it was interesting to note upon the three successive tests that the reaction was primarily of a two-plus character, then of a one-plus character and finally yielded a negative result. This defervescence of reaction was attributed to the gradual death of the chorionic structure. The patient eventually aborted a dead fetus.

5. *Intra-uterine tumors.* As is well known, this test is applicable particularly to the diagnosis of the hydatid mole and the chorionepithelioma. Because of the fact that such types of growth permit of the output of the gonadotropic hormone in very considerable amounts, the urine of such subjects yields a very distinctly positive reaction. The failure to obtain a positive reaction in connection with a suspected pathologic pregnancy of these types, is more reassuring in excluding such possibilities.

6. *Chorionepithelioma of the male and teratomatous tumors of both sexes.* There has accumulated a considerable number of reports of definite positive reactions in such occurrences. In my experience, I have had but very few suspected instances which

proved both negative from the test and operative standpoint.

7. *False positives.* Stadiem,[9] in his publication, reports nine false positives consisting of three ovarian cysts (retention), one each of pituitary tumor, hypernephroma, ovary granulosal cell tumor and carcinoma of the uterus, and two of menopause. He also cites certain other similar factors such as hyperthyroidism, reported by other observers. Most of these observers have handled institutional cases and through this means, their reports are of great value. I have not encountered any false positives in particular types of cases. In this connection, it can naturally be understood that patients receiving certain endocrine treatment or extracts thereof are liable to yield a false positive result.

8. *False negatives.* From the false negative standpoint, it is to be appreciated that two factors are concerned: (1) The failure of sufficient titer of hormonal output in the urine, and (2) a refractory or immature rabbit. Of a group of ten false negative reactions, five yielding negative reactions ten days after the first missed menstruation, yielded definite positives within two weeks thereafter. Of the remaining five, most of which were repeated and persisted in negative results, three of the mothers later proved to be pregnant were between 40 and 45 years of age. The other two are inexplicable. In these instances, no chemical assays of the urine were made.

SUMMARY

While it is appreciated that there is nothing new that has been added in the present paper, on the other hand, because of the large number of tests that have been carried out (approximately 2500) particularly of the "problem variety," it is felt that its presentation is justified. The percentage of errors obtained has been approximately 0.5 per cent. This has been performed at the very early stage of questionable pregnancy, that is, shortly after the first missed menstruation. Beyond this, its application in potential extra-uterine pregnancy, possible fetal death or miscarriage has yielded valuable information.

In conclusion, this series of observations indicates that the Aschheim-Zondek test as modified by Friedman and first applied by Friedman and Lapham constitutes a most reliable and useful factor in the armamentarium of obstetric practice.

REFERENCES

1. Aschheim, S.: Die Schwangerschaftsdiagnose aus dem Harn durch Nachweis des Hypophysenvorderlappenhormons; praktische und theoretische Ergebnisse aus den Harnuntersuchungen, Klin. Wchnschr., 7:1453, 1928.

2. Friedman, M. H.: Effect of injection of urine of pregnant women on ovary of the rabbit, Proc. Soc. Exper. Biol. & Med., 26:720, 1929.

3. Friedman, M. H.: Mechanism of ovulation in rabbit; ovulation produced by injection of urine from pregnant women, Am. J. Physiol., 90:617, 1929.

4. Friedman, M. H., and Lapham, M. E.: Simple rapid procedure for laboratory diagnosis of early pregnancies, Am. J. Obst. & Gynec., 21:405, 1931.

5. Allen, Edgar: Sex and Internal Secretions, Baltimore, Williams and Wilkins Co., 1932.

6. Siddall, A. C.: A hormone test for pregnancy, J. A. M. A., 91:779, 1928.

7. Crew, F. A. E.: Biological pregnancy diagnosis tests; comparison of rabbit, mouse and "clawed toad" as experimental animals, Brit. M. J., 1:766, 1939.

8. Kanter, A. E., Bauer, C. P., and Klawans, A. H.: New biological test for hormones in pregnancy urine; preliminary report, J. A. M. A., 103:2026, 1934.

9. Stadiem, M. L.: Clinical application of Aschheim-Zondek and Friedman test, South. Surgeon, 7:44, 1938.

10. Aschheim, S.: Pregnancy tests, J. A. M. A., 104:1324, 1935.

DISCUSSION

Dr. E. L. King (New Orleans): The first point is the question of the negative reaction early in a suspected pregnancy. The reaction does not always become positive within a few days after the missed menstrual period but may be negative at this time and become positive later on. Positive reports have been made on patients who have not missed a menstrual period, that is, who are only two or three weeks pregnant, but that is exceedingly rare. In cases only a week or ten days past the menstrual period, do not make the mistake of running the test unless the patient is very insistent; if it comes back positive then you do know the patient is pregnant, but if it comes back negative, you still do not know.

Dr. Friedrichs brought out the value of the test in ectopic pregnancy. That is particularly true when the pregnancy is still alive in the tube. If the fetus has died and the chorionic villi are no longer active there may be a negative test and still diagnosis of ectopic pregnancy will be correct. In a positive test you can suspect ectopic pregnancy.

In miscarriage again it is of value, and also in cases where there has been some bleeding and there is the question as to whether the fetus is still alive. Some of these women may bleed only slightly and then stop bleeding. In such cases the fetus may die and still be retained, thus a negative test may be obtained. In the matter of the life or death of the fetus, which is a subject of considerable concern, one thing brought out by Dr. Friedrichs is the duration of the test period on the rabbit. In one particular case the rabbit at the end of 48 hours was negative. We were very anxious to make sure before emptying the uterus, and at the end of 72 hours the test was positive. If we had acted upon the first report, we would have emptied the uterus of a live pregnancy. Therefore, in case of doubt, sew the rabbit up and wait. If the test becomes negative later it will carry the implication that the fetus has died. I have had some cases where there was definite death of the fetus with persistent positive reactions, which was explained by the fact that there were still live chorionic villi.

A good deal of work has been done on hydatid mole and chorionepithelioma from the quantitative standpoint, using ½ c. c. or less of urine for the test, but that has been inconclusive. While it is of some value, it has not been found to be accurate.

Regarding false positives, I may say I have known only two false positives and in each instance there was question as to whether the rabbit had been properly isolated. It is very important that these rabbits should be isolated before the test is run. At Tulane, the rabbits are put away for six weeks and they are isolated for four or five weeks after using before being used again. It is very important that this be done, otherwise you will get false positives. False negatives, as Dr. Friedrichs brought out, may be due to the fact that the rabbit does not react. In that case you have to use another rabbit.

Dr. M. L. Stadiem (New Orleans): I would like to agree with everything that has been said and would like to congratulate Dr. Friedrichs on his 0.5 per cent false negatives, which will correspond with that of the best clinics in the world—that is exactly what their percentage of false negatives is.

I would like to bring a few practical points to your attention, especially about the quantity of urine. One thing we have been overlooking is the type of urine. If the patient has a low specific gravity and puts out 4000 or 5000 c. c. a day it is not comparable to that of one who puts out only two quarts a day. The titer of urine in pregnancy is based on that per 1000 c. c. Aschheim and Zondek, who first did this in 1927, said normal pregnancy had a total of 50,000 units per liter. The highest titer of normal pregnancy is at the eighth week and may go to 150,000 units per liter. You must consider the specific gravity as well as the amount of urine; therefore, it should be calculated on a 24-hour specimen of urine. If the urine is to be shipped away, it should be sent away under a preservative. Urine should never be boiled, because boiling over 60° C. will destroy the hormone. I usually limit the patients to 400 c. c. of fluid prior to the collection of the first morning specimen.

I would like to remind you that many patients will give false positives from such factors as high increased intracranial pressure, tumors of the adrenal, tumors of the pituitary. These are isolated cases, however, but must be kept in mind. The urologist will also tell you that the cured case of teratoma of the testes will have more than 200 mouse units per liter of urine. That is not conclusive in all cases. Another point is the following of the case of hydatid mole. As I just mentioned, at the eighth week of pregnancy, the titer of urine may be 150,000 units per liter. Hydatid mole will give a high titer. Zondek, in 1927, brought out the fact that when there is hydatid mole or chorionepithelioma there will be a high titer. We did not get a positive Aschheim Zondek or Friedman modification in either of those cases proved hydatiform mole.

While this is the most valuable adjuvant, never let any laboratory test overrule your clinical judgment. If there is bleeding, whether the Aschheim-Zondek is positive or negative, empty the uterus.

May I warn you that you must follow the case of hydatiform mole for two years at intervals of two months, taking successive Friedman tests before you can tell the patient if she is cured, because there have been patients who, as long as eight to ten months later, developed chorionepithelioma when the Friedman test was negative in the interval. It is extremely valuable as a laboratory test, but do not overlook the fact that twin pregnancy and in hyperemesis gravidarum long associated, that there is concentrated urine which will give a high titer. I would be cautious about emptying the uterus unless there is bleeding because that may be twin pregnancy, for there are normal cases evacuated thinking hydatiform mole to be present.

Dr. A. V. Friedrichs (In closing): Concerning the question of the time factor regarding the opening of the rabbits brought out by Dr. King, I would like to state that when this test was originally started there was the concensus by all laboratory workers to open these animals in 24 hours after inoculation. We used that procedure but found that in one or two instances we were obtaining erroneous results because upon re-opening these animals at the end of 48 to 72 hours, a positive result would be obtained, whereas at the end of 24 hours a negative result was found. At the present time, unless there is a question of ectopic pregnancy, we do not touch these animals for 72 hours.

THE DIAGNOSIS AND TREATMENT OF STERILITY*

W. A. DIAL, M. D.†
BATON ROUGE

This paper which includes a resumé of the important literature during the past two years is not being presented with the idea of bringing forth any original subject matter or for the purpose of adding any case histories or series to the already large accumulation, but it is being presented in an attempt to clarify some of that which has already been published. Within recent years there has been a steady advance in our knowledge of the many causes of sterile marriages and a corresponding advance in the effective and successful management of sterility. This knowledge to a large extent has penetrated the lay mind, and women who find themselves unable to reproduce present themselves to the physician fully expecting to obtain relief or satisfactory explanation for their plight.

It has been variously estimated that from 10 to 15 per cent of all marriages are sterile, that is, unable to achieve a pregnancy and a larger per cent if one includes women who abort habitually or whose fetuses regularly die *in utero* at or near term, though the latter two conditions cannot be considered as actual sterility. But, since the patient presents herself for the purpose of bearing a normal, living infant, these points deserve some consideration. Coupled with the above factors, when one considers the psychologic aspects of the problem and that one out of every ten women who consult the gynecologist does so because of the problem of sterility, its importance is immediately apparent.

The writer knows of no condition in which greater cooperation is offered by the female, but the male is often difficult to deal with because of his self-assured, procreative ability. It is here that the first and most important step should be taken, that is, an explanation to husband and wife of the complicated nature of sterility and that certain systematic and routine studies must be carried out in order to discover and treat as many as possible of the several causes in both sexes. Unless this is thoroughly agreed upon, it is best to explain that it is useless to begin. Mazer has, I believe, ably stated that such an investigation may take no less than eight months to one year because it is not well to discover one or two outstanding factors and be satisfied that these are the answer but to continue the investigation until the possible factors are eliminated, there now being recognized more than forty causes.

Many authors advise that since 25 to 50 per cent (average about one-third) of the cases are due to the male, he should be eliminated first. Since there are usually multiple factors in both sexes, this seems to be time consuming and to me a better plan would be to parallel the investigation in both so that each factor could be weighed separately and correlated with the others. Titus, in his new book on "Management of Obstetric Difficulties," offers a formidable plan of approach as follows: (1) History and general physical examination of husband and wife, including blood count and urinalysis; (2) pelvic examination of wife and examination of husband's genital organs; (3) estimation of basal metabolic rates of husband and wife; (4) postcoital examination of semen from a jar specimen and one from the cervical canal (Huhner test); (5) tests for tubal patency by air insufflation with atropine (Rubin test); (6) x-ray of uterus and tubes with opaque media; (7) hormone determinations of blood and urine; (8) endometrial biopsy. He states that with the exception of x-ray, visualization of the tubes and the laboratory estimations of the hormone values, the minimum requirements of a sterility study are that all of these steps must be carried out.

HISTORY

That the age factor is of importance is an obvious fact though some have attempted to prove that fertility exists in the male up to eighty years and beyond. To me, such cases are to be regarded with extreme suspicion. Female fertility has been shown to be greatest between ages 25 and 30 and male fertility between 25 and 35. The length of marriage has some bearing and nearly all are agreed that for all practical purposes three years of married life would seem to be an adequate length of time for conception to have occurred in normal persons. Low fertility of parents and close relatives may suggest some inherent glandular dysfunction. The history of previous marriages and pregnancies are obviously important. The one child marriage suggests the occurrence of pelvic disease following delivery, though all know that every individual has periods of greater and lesser fertility; diet, chronic illness, and so on, playing their parts. Mumps or scarlet fever may have rendered either partner sterile by involving the gonads; likewise, gonorrhea by its blockage of the various ducts in either sex. Pelvic peritonitis may have occluded the tubes by kinks and adhesions. Habits of intercourse may include innocuous lubricants or coitus interruptus with its resultant chronic pelvic congestion and tubal occlusion. Excessive intercourse may exhaust the male store of sperm. Dyspareunia is a subject in itself and must be managed accordingly. Previous operations, excessive use of alcohol, narcotics, possibly tobacco, lead poisoning, focal infections, chronic intestinal stasis, and excessive exposure to x-ray may be factors all worthy of consideration for obvious reasons. Sleep, rest, and exercise are important.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the Stanocola Employees Medical and Hospital Association, Baton Rouge, Louisiana.

The importance of the menstrual history is immediately apparent when one considers that a history of irregular bleeding occurs in approximately 40 per cent of cases (Sheldon), and that rarely does a pregnancy occur in cycles under 27 days (Campbell). The age of onset of menses, periodicity of flow and the approximate amount of blood loss may give definite clue to endocrine dysfunction. Dysmenorrhea and clots are more suggestive of local disorders. Intermenstrual pain and/or bleeding may indicate ovulation.

EXAMINATION

In the examination of these patients, in addition to the thorough general checkup, it is important that a definite estimation of the endocrine status be made in both sexes, because there may exist such a degree of endocrinopathy that pregnancy would be contraindicated because of the likelihood of abnormalities in the offspring. Such an endocrine status may be determined from the height, weight, hair distribution, fat distribution, breasts, anthropometry and the basal metabolism. Thus, precocity is usually found in the low, fat, squatty, low metabolic girl. Delayed puberty, sterility and hypogonadism are usually found in the tall slender girl who exhibits underdevelopment of the breasts and genitalia and a height shorter than the armstretch or a measurement from the symphysis to the heel, longer than that from the symphysis to the vertex.

About two-thirds of all cases of so-called sterility in the female display some type of lesion in the pelvis, therefore this part of the examination must be done in absolute detail. Lesions of the vulva are rarely a cause of sterility but lacerations of the perineum favor the escape of semen from the vagina and may be responsible for secondary sterility. Congenital lesions must be appropriately managed. Inflammatory lesions of the vagina, particularly of the yeast and trichomonas varieties or in combination with *Streptococcus subaciditus* must be cured.

Sheldon states that 36 per cent of his series showed some lesions about the cervix. Erosions and ulcerations must be carefully cauterized, strictures dilated and cysts and polyps removed. The pH of the cervical secretions should be alkaline and if acid, indicate a pathologic disorder in the canal or higher in the generative tract.

The examination should next include a determination of the position, size, shape, and mobility of the uterus. Malpositions and fibroid tumors do not necessarily prevent but frequently hinder conception. Palpatory evidence of tubal disease should be sought; Kirtley found non-patent tubes in 50 per cent of his cases. The ovaries should be examined for size, position, fixation and possible evidence of ovulation. Ovarian cysts are not incompatible with conception but sterility is the rule.

For obvious reasons, routine as well as special laboratory work should be carried out on both sexes. The urine may reveal the presence of a previously undiscovered chronic nephritis. The stool may reveal any intestinal parasite common to the locality. Anemia, unless grave, is usually not regarded as an important factor but should be corrected. Litzenberg found hypothyroidism to be a major factor in 15 per cent of a large series. Since the basal metabolic rate is often misleading in borderline cases, it might be wise to consider thyroid medication as an empiric measure in all patients with a low plus level and below who can tolerate the drug without untoward symptoms.

In the oft encountered case wherein the male refuses to cooperate, the Huhner test has a bit to offer. The female is instructed to report within one hour after intercourse and without voiding as this may force the ejaculate from the vagina. If the vaginal pool and cervical secretions reveal a great number of actively motile spermatozoa, at least 75 per cent of which have normal morphology, it can be assumed with a fair degree of certainty that the male is capable of fertilizing his partner, and that the cervical secretions are not inimical to the sperm. Some investigators have claimed good results in male patients with abnormal number and mobility of sperm by the use of anterior pituitary and anterior pituitary-like hormones. Sufficient confirmation is yet lacking but these preparations should be given the benefit of the doubt in indicated cases.

Endometrial biopsy, best taken during the first eight hours of menstruation because of the possibility of disturbing an unsuspected pregnancy, is an extremely valuable and simple procedure. The investigator should familiarize himself with the various histologic patterns of endometria because, thereby, he can best correlate those findings with the clinical picture presented by the patient. This test, when abnormalities are found, is a definite aid in management of the case. Of greatest importance, it reveals the degree of ovarian efficiency. DeLee, in discussing pseudomenstruation as a cause of sterility in adult women states: "The exact frequency of anovulatory menstruation is unknown. Rock, Bartlett and Matson found the incidence to be 9.1 per cent in their sterility cases, whereas Effkemann found it to be 14 per cent. However, it is certain that anovulatory menstruation occurs much more often in sterile women than in women who have borne children. It must be remembered that anovulatory menstruation is not necessarily a permanent condition. Women may have ovulatory menses at times and anovulatory cyclic bleeding at others. Clinically the two are usually indistinguishable, but a study of the endometrium at the different times will reveal a secretory (normal early menstruation endometrium) phase during the periods of ovulation and a persistent proliferative (post-menstrual endometrium) phase during the periods of anovulatory menstruation." Though this has recently been questioned by Hamblin and others, it often gives indispensable information as to when and how hormone therapy should be instituted. It may be stated here that pregnant mare sera have not proved effective in the production of ovulation in women and monkeys (Ross) and should be discarded from the armamentarium in the treatment of sterility.

Novak believes that the riddle of ovulation is locked up in the pituitary gland and that a failure of ovulation is due to pituitary dysfunction, the luteinization mechanism not being touched off for some reason, thought to be caused by an imbalance between the anterior pituitary and the follicle. The unruptured follicle continues to grow and produces excessive amounts of estrogenic hormone until a reverse action is exerted on the pituitary and a resultant check in the growth of the follicle which brings about a so-called withdrawal bleeding without ovulation.

In such cases, Hamblin suggests the utilization of "rest-periods" for the ovary by administering substitutional hormone therapy, in which, otherwise, withdrawal bleeding might be expected to occur, that is, estrogenic hormone throughout the intermenstrual period (this now being known to be secreted throughout the cycle) and luteinizing hormone during the latter half of the intermenstrual period. This process is continued for about four months after which a period of four months is allowed to elapse without therapy and the process is repeated. During the second or third series of therapy, anterior pituitary hormone may be added. The dosage of all is usually large but will not be discussed here because both the estrogenic and the luteinizing products in synthetic form for oral use soon will be on the market.

Obviously, the quantitative estimations of hormones in the blood and urine are important aids in the diagnosis and treatment of sterility but have the disadvantage of necessitating a well equipped laboratory and a trained technician. Thus far, sufficient data have not been compiled to rely too greatly on these findings but, suffice it to say, low values of the hormones in the blood or of their end products in the urine, when correlated with the other findings are indications for the administration of the corresponding products. These tests are also of diagnostic aid in determining the presence or absence of ovulation.

THERAPEUTIC AND DIAGNOSTIC AIDS

Aside from the general studies of the female, the Rubin insufflation test probably affords the greatest therapeutic and diagnostic aid in modern use. Ferguson claims that of 98 patients with patent tubes, 84, or 85.7 per cent, were known to have become pregnant following its use. In addition to its value in determining the patency of the tubes and after overcoming partial blockage, when combined with hysterosalpingography, it gives important information pertaining to the relationship which the fimbriated end of the tubes bears to the ovary, the position of the latter having been determined by bimanual palpation.

The test is performed preferably at least two days after completion of the menstrual period in order to prevent any possibility of backflow of endometrial tissue and at or just before the beginning of the conception period. The test may be repeated each month as this often temporarily overcomes a partial blockage. In cases which reveal a complete blockage, the test should be repeated with the patient under at least a moderate amount of sedation and atropine in order to overcome any tubal spasm which may account for blockage. The pressure should never be forced above 200 mm. of mercury for fear of rupturing an already damaged tube.

In cases which reveal some anatomic defect in the male such as hypospadias or some unusual condition in the female, mechanically preventing the spermatozoa from being deposited in the external os as revealed by the Huhner test, artificial insemination may be a solution to the problem though it is credited by the laity with being of much more value than it actually is. When this procedure is used, it must be accomplished with the least possible trauma, preferably with a flexible cannula, because any bleeding excited in manipulation will render the spermatozoon inert. One-half to one c.c. of the seminal fluid is sufficient in amount, the injection of a greater amount often being accompanied by intense cramp-like pain.

Of diagnostic aid in the management of any case of female sterility, the determination of ovulation is extremely important. Nearly every practitioner in gynecology has had the experience of feeling a small ovarian cyst rupture under the examining finger. Though this is not an oft encountered occurrence, it is of definite aid when correlated with the menstrual history. As stated above, endometrial biopsy probably is the greatest single aid in diagnosis of ovulation or anovulation. Novak, Hamblin and others have aptly stated that this test is not to be greatly relied upon because the riddle of ovulation is still locked up in the pituitary gland. Zuck maintains that basal body metabolism as indicated by temperature recordings and basal metabolic determinations is a guide to the period of ovulation, a definite rise in these indicating that ovulation has taken place. Collins claims this to have been of little or no value in his hands. Hormonal studies will be dismissed by stating that their value in determining the occurrence of ovulation is unquestioned but have not yet become practical for general use because of the markedly technical nature of such tests. The examiner should use every facility at his command and if he be located at or near a well equipped medical center, all of the above methods may be utilized.

As DeLee suggests, it would be interesting and helpful to try to correlate Rubenstein's contention of a massive desquamation of the vaginal epithelium with a sharp rise in temperature, Zuck's claim of changes in the basal metabolic rate and temperature, the electric potentiometric method of Burr, endometrial biopsy, hormonal studies of the urine, and manual palpation when possible. With these and the aforementioned factors, we would then almost certainly arrive at a conclusion as to when ovulation occurred in a given menstrual cycle, even though some women ovulate and conceive during actual menstrual bleeding.

The occurrence of spontaneous abortion following therapy in cases of sterility is so common that these couples should be warned about this possibility. Since the advent of wheat germ oil and progesterone in the treatment of habitual abortion, there has been marked success in the management of same and it is therefore logical to advise that these drugs be used in these cases who become pregnant. Therapy is begun as soon as the pregnancy is suspected. Progesterone, one unit once a week, is given until the beginning of the fifth lunar month and wheat germ oil, thirty drops three times a day, is given until the beginning of the ninth lunar month or beyond.

Kaplan claims to have reestablished menstruation in 124 of 142 patients with amenorrhea and 52 of these subsequently become pregnant following roentgen ray therapy to the ovaries and pituitary and in a few instances to the thyroid. Mazer and Baer also bear out this contention as a therapeutic aid.

PRECAUTIONS IN DIAGNOSIS AND PROGNOSIS

Titus quotes Rubin as follows, "It is well to emphasize the fact that no couple should be told they are sterile unless all the factors have been most scrupulously analyzed and the examinations made with the greatest of care have corroborated each other and have been counterchecked."

It is distinctly wise to avoid a final verdict of hopeless sterility in any instance because of the untold harm which can obviously result in the psychic and family life of the couple in question and especially far reaching is the harmful effect upon the male. In cases of hopeless prognosis, the couple should be told that conception is uncertain and even unlikely under present conditions. Such advice often keeps the examiner from being caught "holding the bag", if an error is made and pregnancy does occur.

According to the extent of the desire of the couple for children, operative intervention may be resorted to in cases where possible aid may be obtained from such procedures as indicated, though remunerations for such efforts are few and far between.

BIBLIOGRAPHY

Bowes, K.: Sterility investigation, J. M. A. Ala., 7:259, 1938.

Bologna, E. J.: Period of fecundity and sterility in women, Endocrinol. Gynec. Obst., 3:189, 1938.

Bruck, S., and Fruchter, J. M.: Sterility (analysis of 108 cases), Radiol., 32:446, 1939.

Campbell, R. E., and Sevringhaus, E. L.: Pituitary gonadotropic extracts, Am. J. Obst. & Gynec., 37:913, 1938.

Campbell, A. D.: Certain aspects in so-called sterility in the female, Surg. Gynec. & Obst., 68:189, 1939.

Collins, Conrad: Lectures in Gynecology, Tulane, 1940.

Countiss, Eugene: Lectures in Gynecology, Tulane, 1940.

De Lee, J. B.: Year Book of Obstetrics and Gynecology, pp. 382-414, 1939.

Ferguson, R. T.: Results in 218 patients with sterility. South. Med. & Surg., 100:220, 1938.

Frank, R. T.: Endocrine sterility, J. Contraception, 4:3, 1939.

Heckel, N. J.: The gonadotropic factor in the treatment of male sterility, Endocrinology, 22:111, 1938.

Hamblin, E. C.: Lecture on Hormones, Tulane, 1940.

Hoffman, C. D.: Sterility, studies in etiology, J. Florida M. A., 25:435, 1939.

Hunt, A. B.: Use of pregnant mare's serum in sterility, Proc. Staff Meet., Mayo Clin., 13:81, 1938.

Kaplan, I. I.: Amenorrhea and sterility, New York State J. M., 38: 626, 1938.

Kirtley, H. P.: Sterility, clinical studies in women, Med. Record, 147:241, 1938.

Kotz, J., and Parker, E.: Sterility, factors in 150 cases, Am. J. Obst. & Gynec., 37:233, 1939.

Mason, L. W.: Sex hormone factors in recurrent abortion and sterility, Am. J. Obst. & Gynec., 35:559, 1938.

Mason, L. W.: Hypothyroidism as a factor in sterility, Rocky Mount M. J., 36:399, 1939.

Mazer, C., and Baer, G.: Value of low dosage irradiation of pituitary gland and ovaries, Am. J. Obst. & Gynec., 37:1015, 1939.

Novak, E.: Syndrome of failure of ovulation, Am. J. Obst. & Gynec., 37:605, 1939.

Rock, J., Bartlett, M. K., and Matson, D. D.: Incidence of anovulatory menstruation among patients of low fertility, Am. J. Obst. & Gynec., 37:3, 1939.

Sheldon, C. P.: Human female sterility, New York State J. M., 37:2089, 1937.

Singleton, J. M., and Hunter, J. L.: The effect of alkaline vaginal douche on the Huhner test and sterility, Am. J. Obst. & Gynec., 37:856, 1939.

Titus, Paul: Management of Obstetric Difficulties, C. V. Mosby Company, St. Louis, 1939, pp. 1-69.

Wallner, A.: Pitfalls in history and diagnosis of female sterility, Am. J. Surg., 39:627, 1938.

White, M. M.: Sterility—Report of 62 cases, Brit. M. J., 1:62, 1939.

Woods, E. B.: Diagnosis of sterility, J. Florida M. A., 25:558, 1939.

DISCUSSION

Dr. Conrad G. Collins (New Orleans): Now, about the definition of sterility: For years we have gone along with the definition that the woman should try at least three years to become pregnant, and if at the end of three years she had not become pregnant, that could be termed sterility. I believe that was all right years ago. I think we must modify the definition now, and that will answer Dr. Dial's couples who use contraceptives. Today, when families are planned as to number and when the pregnancy will take place, I think if the couples do not use contraceptives and desire a child, let them go four or five months without treatment. If not pregnant, I believe an investigation should be started immediately, and any factor that helps them become pregnant should be used.

As to whether contraceptives do or do not play a part in sterility, I am not certain. Some people insist that the use of contraceptives does decrease the fertility of the partners; I am not fully convinced of that myself.

You have heard Dr. Dial's reference to the case reported by Dr. King where the woman had an imperforate hymen, not infrequently this is a feature in sterility, and then the semen should be introduced into the uterine fundus, but there are uteri acutely anteflexed, where the cervix is against the anterior vaginal wall, where the cervix is displaced. There it is a good idea for the husband to introduce the penis into the vagina until the glans only is in the canal and let the ejaculate strike against the cervix. The use of that method will lower the number of operations performed for retrodisplacements in the treatment of sterility.

Another factor, especially when there is dyspareunia, is the amount of relaxation. We know ovulation takes place, in a 28 day cycle, on the tenth to fourteenth day. At that time, patients who are sterile, with a woman of the nervous type, no factor found, I prescribe a dose of sedatives such as nembutal or luminal prior to intercourse, to relax completely. Women, especially those who have relaxation, rectoceles, cystoceles, beginning prolapse of the uterus, quite frequently get up to urinate after intercourse and the semen runs out the vagina. Patients should be instructed that they elevate the hips on pillows following intercourse.

As regards ovulation, there are methods of determining when ovulation takes place. That, however, takes just an endometrial biopsy to prove that ovulation is taking place. We find one of two types of endometrium; either the proliferative stage, or the differentiating stage, which always means corpus luteum. As to time of ovulation, that can be determined electrically, but New Haven is the only place they have a vaginometer. The other method will be palpation of the woman's abdomen repeatedly throughout the menstrual cycle to see whether she is getting enlargement of one or the other ovary. Another method, introduced by Zuck, the accuracy of which is indefinite as yet, is taking the rectal temperature daily. He states that at ovulation time there is a drop of ½ degree. Certainly, there is no harm in doing that and if the patient has a decided drop, prescribe intercourse at that time.

Another factor is infrequently the patient has abdominal pain when she ovulates, in one side or the other, the "mittelschmerz" of the Germans, and will refuse to accept a partner at that time. It is just the time when she should have intercourse. If the pain is too great, prescribe codeine and let the patient have intercourse at the time she has pain.

As to dilatation of the cervix when the tubes are patent, about the tenth day of the cycle (the first day of the flow being the first day of the cycle) it is all right to dilate the cervix and insufflate the tubes, and frequently your efforts will be rewarded.

Hormones: To date I cannot say that any woman I have treated who has become pregnant has become pregnant as the result of estrogen, progestin, or pregnant mare serum. Those that have become pregnant have become pregnant by the use of thyroid extract and acceleration of the basal metabolic rate, whether normal or low. I believe it is the best endocrine product known today.

Wheat germ oil is valuable in keeping the pregnancy in the uterus, but I have seen no effect on fertility as a result of the administration of wheat germ oil.

Surgery may be resorted to when patients need treatment of cervicitis or of fibroids. One word about tubal reconstruction; if you are going to reconstruct a patient's tubes that are blocked, remind her that she has one chance in 22 of ever delivering a full term viable fetus as a result of the operation.

Dr. Eugene H. Countiss (New Orleans): As to the use of iodized substances, I might mention a patient who was recently operated upon seven years after a salpingogram had been done with lipiodol. She had a suspension prior to the use of this oil and the tubes were then patent. In the absence of a history of infection, we felt justified in accrediting partially blocked tubes, perisalpingitis and oophoritis to the iodized oil. In another case, oil was found encapsulated within the fallopian tube six years after instillation.

I feel that it is rarely, if ever, necessary to instill opaque media at the time of tubal insufflation. A partially blocked tube may be completely occluded by the irritation of an opaque substance. As long as one tube is open to air, there is no necessity of salpingography, though if one is to be used, skiodan, which is more readily absorbed, is preferable.

Following an insufflation, a patient should never be told that the fallopian tubes are blocked unless the procedure is repeated at least once. Not infrequently tubes that are apparently closed to air injected through the cervix are found to be patent when insufflated from the fimbriated ends.

Dr. W. A. Dial (In closing): Obviously, the subject of sterility is so broad that all of its phases cannot be even touched upon in such a limited time.

Dr. Collins stressed the use of thyroid substance. There is no doubt that it is the most important hormonal drug used, not only in the treatment of sterility but also in the management of other gynecologic problems as well. It should be used as an empiric measure in all patients, both male and female, to the point of tolerance. Some may not tolerate more than 1/10 grain to start but they may be gradually worked up to tolerance and then the dose is slightly reduced and maintained.

As to the use of estrogenic and luteinizing hormones, we are not giving them in adequate dosage now. I believe that in a few months, those drugs will be available in new, oral forms and they will be a great deal more valuable than those which are used today.

Hamblin, who spoke here some months ago, stated that about 50 per cent of his cases are hormonal in origin but, remember, these are filtered cases; all of the minor problems have been ironed out before the patient is referred to him. He believes that the ovary, like any other tissue in the body, becomes overtaxed; it is working at full speed and this is not enough. He institutes rest periods by giving substitutional hormone as previously described. Novak, Hamblin, Ross, Collins and others claim that there have not been enough pregnancies following the use of pregnant mare's serum to warrant any further consideration of its use.

As Dr. Countiss stressed, I like to insufflate these patients each month prior to the conception period. If an unsuspected pregnancy already exists, it will not be disturbed by this procedure.

THE USE OF SULFANILAMIDE IN PERITONITIS*

MARSHALL L. MICHEL, M. D.†
NEW ORLEANS

Peritonitis, whether it be localized or generalized, is still an important surgical problem. The mortality, in spite of many advances in treatment, remains appallingly high.

Since the introduction of sulfanilamide and related compounds, many types of surgical infections have been successfully treated with these drugs. One of the first experimental investigations demonstrating the value of sulfanilamide in hemolytic streptococcal infections was performed by Domagk[1] in controlling experimental mouse peritonitis. However, it has been only recently that the successful clinical use of the drug in peritonitis has been reported.

It is now the opinion of many clinicians that the use of sulfanilamide in adequate dosage is of definite value in the treatment of peritonitis. This opinion is based not only on recent reports of the actual successful use of the drug with an apparent improvement in mortality statistics, but also is based on well-known concepts of the pathology and bacteriology of peritonitis and the proved action of the drug on certain specific bacteria.

BASIC PRINCIPLES OF THE USE OF SULFANILAMIDE IN PERITONITIS

Chemotherapy, in any particular infection, should be based first of all on the effect of the drug on the specific bacteria responsible for the infection. Another factor to be considered is the manner in which the drug is absorbed, distributed throughout the body tissues, and excreted. Furthermore, the actual pathologic changes which are present are also of importance in determining the effectiveness of the drug.

---

*Read before the Orleans Parish Medical Society, June 10, 1940.

†From the Surgical Service, Touro Infirmary, New Orleans.

The use of sulfanilamide and allied compounds in the treatment of peritonitis is based on three principles: (1) The clinical and experimental evidence showing that the drug can be recovered in high concentrations in the peritoneal cavity; (2) the specific therapeutic effect of sulfanilamide on the bacteria most frequently found in cases of peritonitis; (3) the nature of the pathologic changes which take place in peritonitis.

Marshall,[2] Long,[3] and Bliss[3] have demonstrated that sulfanilamide diffuses rapidly into all body tissues and fluids. Furthermore, the drug is present in relatively high concentrations in the peritoneal fluids. Long[3] and Bliss[3] have also demonstrated the presence of sulfanilamide in transudates and exudates.

Ravdin, Rhoads, and Lockwood[4] have shown in experimental animals that the sulfanilamide concentration in the peritoneal fluid reaches a high level in as short a time as an hour and a half after the administration of sulfanilamide by hypodermoclysis. It is therefore evident that sulfanilamide is present in the normal fluid of the peritoneal cavity, as well as in the pathologic exudates and transudates. This is now considered to be true of all the serous membranes of the body, and is the basis of the treatment of arthritis, meningitis, and empyema, as well as peritonitis.

The specific effect which sulfanilamide has on certain particular micro-organisms is important in explaining why sulfanilamide should be of value in the treatment of many types of peritonitis.

The most frequent type of peritonitis with which we are obliged to cope is that type occurring as a complication of appendicitis, with or without actual perforation. In this condition, it is generally accepted that the colon group (*B. Coli* and others) and streptococci are the most common invaders of the peritoneum.

Experimentally, Bower, Burns, and Mengle[5] have produced appendiceal peritonitis by ligating the base as well as the blood supply in dogs, followed with a large dose of castor oil. In the resulting peritonitis in these animals, the colon group and streptococci were the most frequent organisms isolated.

Ravdin,[4] in a large series of peritoneal cultures in appendiceal peritonitis, found *B. coli* to be the most frequent organism cultured. Streptococci, both hemolytic and non-hemolytic, were next in frequency. Corry, Brewer, and Nicol[6] and others report similar results in their investigations of the bacteriology of appendiceal peritonitis.

Long,[3] Bliss,[3] Domagk,[1] Lockwood[7] and numerous other investigators have proved conclusively, both experimentally and clinically, that sulfanilamide is of definite therapeutic value in the treatment of infections due to many types of streptococci, both hemolytic and non-hemolytic.

The efficiency of sulfanilamide against *B. coli* is almost as widely accepted. Burns[8] states that over 60 per cent of urinary tract infections due to *B. coli* can be cured with sulfanilamide. Cokkinis,[9] Helmholz,[10] and others also report the efficacy of sulfanilamide in the treatment of urinary infections due to the colon group. It is reasonable to believe that sulfanilamide would also be effective against colon infections of the peritoneal cavity.

The importance of anerobes in appendiceal peritonitis has been stressed by Bower,[5] Ravdin,[4] and others. *Clostridium welchii* is the most frequent anerobe that can be cultured. When anerobes can be isolated by cultures from the peritoneum, *B. welchii* is found in over 60 per cent of the cases according to the statistics of Bower, Burns, and Mengle.[8] Bohlman[11] and others have demonstrated the chemotherapeutic value of sulfanilamide in infections due to *B. welchii.* Therefore, it is evident that sulfanilamide has a specific action against the colon group, streptococci, and *B. welchii,* the three most common organisms isolated in appendiceal peritonitis.

It is probably true, also, that these are the principal micro-organisms involved in perforation of the large and small bowel at other points, with resulting peritonitis.

Cheney,[14] and Walters[15] have shown that the colon group of organisms as well as streptococci are also the most frequent micro-organisms involved in cholecystic disease. Cokkinis[9] has reported good results in the conservative treatment of acute cholecystitis with sulfanilamide, and it is reasonable to assume that the drug would also be of value in those cases complicated by peritoneal involvement.

Practically all authorities agree that sulfanilamide has a specific action against infections caused by the gonococcus. In pelvic peritonitis as a complication of gonorrheal disease of the female generative organs, the most frequent secondary invaders are streptococci and the colon group. Therefore, from a bacteriologic standpoint, sulfanilamide should be of value in such cases.

In peritonitis resulting from puerperal sepsis or other obstetric complications, streptococci are the offending micro-organisms in a large percentage of the cases. It is generally agreed that sulfanilamide is highly effective against such infections.

In so-called primary peritonitis, that type in which no definite intra-abdominal focus is present and which is considered to be blood borne, sulfanilamide is of value in a large percentage of cases. This type of peritonitis occurs practically always in children. In an analysis of 67 cases, Ladd, Botsford, and Curnen[16] have shown that 47 cases (70 per cent) were due to streptococci. In these cases, caused by the streptococcus, large doses of sulfanilamide are of definite value. In the remaining 30 per cent of these cases of primary peritonitis, the pneumococcus was the offending organism. Sulfapyridine therapy is indicated instead of sulfanilamide.

The importance of making a bacteriologic diagnosis either by blood culture, or by parencentesis and culture of the fluid obtained, or by cultures from the peritoneum at operation, is extremely important in the handling of cases of childhood primary peritonitis. Chemotherapeutic measures with sulfanilamide and sulfapyridine, as well as specific pneumococcal serum, give a much more hopeful outlook in such cases.

In summarizing this brief review of the bacteriology of peritonitis, it is evident that many types of peritonitis are caused by micro-organisms which are susceptible to sulfanilamide and allied compounds.

Lockwood, Coburn, and Stokinger[7] believe that the gross pathologic characteristics of any particular infectious lesion are of importance in determining the effectiveness of sulfanilamide in the treatment of the condition. It is their opinion that any infection, which is characterized by rapid invasion of contiguous structures, and associated with a minimal degree of necrosis, responds more favorably to sulfanilamide than an infection in which there is considerable tissue injury and necrosis, or which is confined to a localized abscess. This is borne out clinically by the fact that septicemia,erysipelas, septic sore throat, puerperal sepsis, lymphangitis, meningitis, as well as peritonitis and other conditions of the former type, respond well to sulfanilamide, whereas localized abscesses, of all types, infected hematomas, chronic osteomyelitis, and similar conditions, respond very poorly if at all.

Snodgrass[17] explains the efficacy of sulfanilamide against streptococci on the grounds that "invasiveness" is the most outstanding characteristic of this organism from a standpoint of pathologic physiology. It is against this property of "invasiveness" that sulfanilamide is most valuable, be it a streptococcus or any of the other micro-organisms successfully combated by the drug.

Peritonitis is definitely a type of infection characterized by rapid spread. The peritoneum is richly supplied with blood vessels and lymphatics, and seldom do we see ulceration or gangrene, although localized abscesses do occur.

The importance of the blood supply to an organ or tissue is another factor in determining the effectiveness of sulfanilamide. The drug is distributed through the blood stream, and diffuses out into the body tissues. Thus, the rich vascularity of the peritoneum, particularly in inflammatory conditions, is an important factor in the effectiveness of sulfanilamide in peritonitis.

RESULTS OF TREATMENT

A number of favorable reports have recently been made on the actual treatment of peritonitis with sulfanilamide and related compounds. Most of these reports are concerning the successful treatment of appendiceal peritonitis.

From an experimental standpoint, Bower, Burns, and Mengle[5] have produced appendiceal peritonitis in dogs as mentioned above. In a control series, in which the usual methods of treatment were used (without sulfanilamide), the mortality was 91.7 per cent. In another group of animals receiving the same type of treatment in addition to sulfanilamide, the resulting mortality was only 50 per cent.

Ravdin,[4] in treating a large series of cases of acute appendicitis, with and without peritonitis, has reduced his mortality from 1.5 to 0.4 per cent in all cases of acute appendicitis. The use of sulfanilamide was the only change in his method, and was used only in those cases with actual complications or threatened complications. Cokkinis,[9] Corry and Brewer,[6] Nicol,[6] and others have also reported the value of sulfanilamide in the treatment of appendiceal peritonitis.

Ladd, Botsford, and Curnen,[16] and Banks[18] have reported favorable results in the treatment of primary streptococcal peritonitis with sulfanilamide. These same writers report the successful treatment of primary pneumococcal peritonitis with sulfapyridine.

There are only isolated instances in the literature dealing with the successful treatment of peritonitis due to cholecystic disease, or other perforations of the intestinal tract. However, as previously stated, because of the pathologic picture in these types of peritonitis and because of the type of bacteria usually isolated, sulfanilamide therapy should be of value.

SUMMARY OF TREATMENT OF 14 CASES OF PERITONITIS

During the past four months, on the Surgical Service at Touro Infirmary, 15 patients with various types of peritonitis have been treated with large doses of sulfanilamide given subcutaneously as a hypodermoclysis. This series is far too small to justify any final conclusions as to the value of sulfanilamide in peritonitis. Nevertheless, the fact remains that all of these were extremely ill patients, classified definitely as peritonitis of various types, and there has been no mortality. Furthermore, there have been no serious toxic effects from the administration of large doses of sulfanilamide by hypodermoclysis of these cases. Ten of these 15 cases are classified as appendiceal peritonitis; four of the ten are classified as generalized peritonitis, and six as spreading peritonitis.

There were two cases of pelvic peritonitis resulting from septic puerperal complications. The remaining three cases were postoperative complications of a ruptured tubo-ovarian abscess, of an abdominal complete hysterectomy, and of a vaginal hysterectomy. All of these patients received large doses of sulfanilamide by hypodermoclysis, and all have recovered.

METHOD USED IN ADMINISTRATION OF SULFANILAMIDE

In treating these 15 cases, the technic recently advocated by Ravdin has been closely followed. A normal saline solution containing 120 grains of crystalline sulfanilamide to each 1000 c. c. is administered as a hypodermoclysis. The average adult usually received 250 c. c. of this solution every six hours, amounting to 1000 c. c. or 120 grains during 24 hours. This dose was either continued for several days or gradually reduced depending on the response of the patient. The hypodermoclyses were usually administered into the lateral aspect of the thighs, with no serious discomfort to the patient. In a few cases, only 90 grains per 24 hours were given to adults.

Children received smaller doses, depending on their weight and age. However, children, generally speaking, tolerate the drug better than do adults. Relatively higher dosages are necessary in children to maintain an adequate blood concentration. This is probably due to the fact that the renal function of children is usually better than the average adult. Sulfanilamide, as is well known, is almost entirely excreted by the kidneys.

There are two phases concerning the administration of sulfanilamide to surgical cases which should be stressed. First, an adequate blood concentration should be maintained, that is, at least 5 mg. per 100 c. c. Secondly, the drug must be administered at regular hourly intervals so as to maintain the blood concentration at a constant level.

The average blood level in this series was 6.9 mg. The drug was administered regularly day and night at six hour intervals. The average duration of administration of the drug was four to four and half days, being discontinued when it was believed the infection was definitely under control.

Maes[19] states that he has previously used intramuscular injections of prontosil in the treatment of peritonitis. However, in spite of relatively large doses, he was not able to obtain blood sulfanilamide levels high enough to be of therapeutic value. For this reason, he also now advocates the use of the highly purified, soluble form of sulfanilamide known as "prontylin crystals," given in a hypodermoclysis of normal saline. By using the drug in this form, it is possible rapidly to obtain and maintain high blood concentrations.

The administration of sulfanilamide by hypodermoclysis in peritonitis is superior to mouth administration for a number of reasons. The absorption of the drug from the gastrointestinal tract is much slower and much less constant than when given by the parenteral route. Furthermore, the nausea, vomiting, and distention which so often are present in peritonitis make the administration of the drug by mouth particularly ineffective. Added to this is the nausea and vomiting which may be produced by the drug itself.

In primary pneumococcal peritonitis in children, sulfapyridine in the form of the soluble sodium salt can be administered in large doses either intravenously or by hypodermoclysis. I have had no recent experience with primary pneumococcal peritonitis, but have witnessed the successful administration of sulfapyridine to pneumonia patients both by the subcutaneous and intravenous routes.

TOXICITY

The toxic manifestations of sulfanilamide when administered by hypodermoclysis are essentially the same as those which occur when the drug is given by mouth. In this particular series, the toxic manifestations of the drug have been very mild, although relatively large doses have been given.

Cyanosis was the most frequent toxic manifestation. In 14 patients, nine had cyanosis of varying degrees. Long[3], Bliss[3], Ravdin[4], Snodgrass[17] and other authorities agree that this cyanosis is not to be regarded seriously. It is by no means an indication for stopping sulfanilamide therapy. In this series, the cyanosis was disregarded almost entirely unless accompanied by other more serious manifestations of drug toxemia.

Of these 14 patients, four showed a slight decrease in the red blood cell count, which may or may not have been due to the drug. In two instances there was a slight fall in the white blood cell count during the time sulfanilamide was administered. In none of these patients, however, was there a marked leukopenia, agranulocytosis, or anemia which could be definitely attributed to the drug. However, during the administration of sulfanilamide, the blood picture must be followed closely from day to day, because agranulocytosis and hemolytic anemia are two of the most feared toxic manifestations of the drug. A complete blood picture should be recorded every 24 to 48 hours during sulfanilamide therapy.

In practically all of these patients, there has been a definite tendency to an acidosis. This chemical imbalance was combated by the administration of Hartmann's solution intravenously. Other observers have also reported this phenomenon, and have recommended the administration of sodium lactate intravenously or sodium bicarbonate by mouth as methods of combating the acidosis. Because of this disturbed chemistry, these patients should have frequent blood chemistry determinations.

Recently, at the New Orleans Graduate Medical Asembly, Braasch[20] of the Mayo Clinic, warned against use of sulfanilamide by hypodermoclysis because of the local tissue necrosis which may take place at the site of the injection. This has not been my experience. I have administered the highly purified form of sulfanilamide crystals by hypodermoclysis in over 30 cases of peritonitis and other conditions, without a single instance of local tissue damage. It is my opinion that this method is comparatively safe if the crystalline sulfanilamide is administered in a sterile saline solution at a reasonably slow rate and with strict aseptic precautions.

Although we have been fortunate in that there have been no serious toxic effects from the drug in this series of cases, the importance of the toxicity of sulfanilamide cannot be too strongly emphasized. Patients receiving large doses of sulfanilamide must be closely observed. The occurrence of fever out of proportion to the disease itself should frequently be a warning signal. According to Long and Bliss[3], this "drug fever" frequently precedes by several days the more serious toxic complications such as jaundice, hemolytic anemia, or agranulocytosis. As Cokkinis[9] has said, sulfanilamide is a "double edged weapon" and evidence of toxicity must be closely watched for. The drug should be stopped immediately if there is any indication that serious toxic effects may take place.

At the present time, sulfanilamide is widely used for many types of infections. It is frequently of value to question patients before beginning sulfanilamide, as to whether or not they have previously taken the drug. A history of intolerance to the drug is probably the only contraindication to trying its use in those infections where it is known to be of value.

OTHER PHASES OF THE TREATMENT OF PERITONITIS

In discussing the use of sulfanilamide in peritonitis, the other phases of the treatment of this serious surgical condition are not to be overlooked. My experiences with the Miller-Abbott tube in approximately 35 cases of paralytic ileus, both with and without peritonitis, have been extremely gratifying. This method of intestinal intubation is an important advance in the treatment of both mechanical and paralytic ileus. In this small series of 14 cases, the Miller-Abbott tube was used successfully in seven of the 14 cases.

Furthermore, the peritonitis case should receive adequate intravenous fluids and blood transfusions as indicated. Transfusions should probably be used more frequently when large doses of sulfanilamide are given, because of the tendency of the drug to cause a decrease in both the red and white blood cells. The chemical balance of the patient must be closely watched, and fluids administered accordingly. Vitamins are administered by the parenteral route as indicated. The patient, generally speaking, should receive practically nothing by mouth. Adequate sedation, particularly in the form of morphine, should be prescribed.

LOCALIZED PERITONEAL ABSCESSES

The use of sulfanilamide in peritonitis does not eliminate the necessity of frequently draining localized abscesses. In this series of 14 cases, six localized abscesses developed, all of which were successfully drained. All six of these occurred in patients with appendiceal peritonitis, three in the cul de sac, and three in the lower right quadrant.

Any patient with peritonitis who is receiving sulfanilamide therapy should be watched closely for the occurrence of abscesses. Sulfanilamide is not to be considered the treatment of choice in localized intraperitoneal abscesses. The correct treatment is still incision and drainage, if actual pus is present. Sulfanilamide, however, it is believed will tend to prevent a generalized spread of the infection.

Furthermore, localized palpable inflammatory masses of the peritoneum will frequently resolve under sulfanilamide therapy. Cokkinis[9] has reported excellent results in the delayed treatment of complicated appendicitis with a palpable inflammatory mass in the lower right quadrant. In a very large percentage of his cases, these masses resolved spontaneously under sulfanilamide therapy.

PROPHYLACTIC USE OF SULFANILAMIDE

The use of sulfanilamide in the prophylaxis of peritonitis in cases where contamination of the peritoneal cavity is expected merits further study. In a few isolated cases, the drug has been used pre- and postoperatively in operations upon the large bowel. These reports, however, are too few to justify any conclusions at the present time.

There is a conflict of opinions as to the exact effect of sulfanilamide on the antibody mechanism. Cokkinis[9], for example, states that the sulfanilamide should not be used in acute appendicitis during the first 48 hours, because the administration of the drug may interfere with the immunity response. On the same basis, the drug should possibly not be given in peritonitis cases until the infection has established itself and an immunologic response is manifest usually by the presence of fever and leukocytosis. Therefore, it is evident that the value of sulfanilamide as a prophylaxis against peritonitis is still uncertain.

SUMMARY

The use of sulfanilamide in peritonitis is based on three principles: (1) The presence of sulfanilamide in large concentrations in the fluids and exudates of the peritoneal cavity; (2) the specificity of sulfanilamide in combating the micro-organisms most frequently isolated in peritonitis; (3) the property of the drug to be more effective against lesions presenting the pathologic characteristics of rapid spread with little local reaction and necrosis such as is present in peritonitis.

Fourteen patients with peritonitis of various types who have been treated with large doses of sulfanilamide have been studied. There has been no mortality. This series is to small to draw any final conclusions; however, I believe the results justify this preliminary report.

The administration of crystalline sulfanilamide in saline solution, according to the technic recently advocated by Ravdin, is recommended as the method of choice in peritonitis. The drug is administered as a hypodermoclysis at regular hourly intervals. Doses of 120 grains per 24 hours are generally given to adults. It is recommended that the blood concentration be kept above 5 mg. until the infection is under control.

In this series, there have been no serious toxic reactions. However, the toxic effects of the drug are not to be underestimated, and must be carefully guarded against.

REFERENCES

1. Domagk, G.: Deutsche med. Wchnschr, 61:250, 1935.

2. Marshall, E. K., Emerson, K., Cutting, W. C., and Babbit, D.: The mode of action of sulfanilamide, J. A. M. A., 108:953, 1937.

3. Long, P. H., and Bliss, E. A.: The Clinical Use of Sulphanilamide, Sulfapyridine, and Allied Compounds, The MacMillan Company, 1939.

4. Ravdin, I. S., Rhoads, J. E., and Lockwood, J. S.: The use of sulfanilamide in the treatment of peritonitis associated with appendicitis, Ann. Surg., 111:53, 1940.

5. Bower, J. O., Burns, J. C., and Mengle, H. A.: Prontosil in the treatment of spreading peritonitis in dogs, J. Lab. & Clin. Med., 24:240, 1938.

6. Corry, D. C., Brewer, A. C., and Nicol, C.: Postoperative treatment of appendicular peritonitis with sulfanilamide and its derivatives, Brit. M. J., 2:561, 1939.

7. Lockwood, J. S., Coburn, A. F., and Stokinger, H. E.: Studies of mechanism of action of sulfanilamide, J. A. M. A., 25:2259, 1938.

8. Burns, Edgar: Personal communication.

9. Cokkinis, A. J.: Sulfanilamide chemotherapy in surgical infections, Brit. M. J., 2:901, 1938.

10. Helmholz, H. F.: The use of sulfanilamide as a urinary antiseptic, J. Pediat., 11:243, 1937.

11. Bohlman, H. R.: Use of sulfanilamide in infections due to *B. welchii*, J. A. M. A., 109:254, 1937.

12. Eliason, S.: New Orleans Graduate Medical Assembly.

13. Davison, M., Aries, L. J., and Pilot, I.: Bacteriologic study of peritoneal fluid in perforated ulcer, Surg. Gynec. & Obst., 68:1017, 1939.

14. Cheney, W. F.: Encyclopedia of Medicine, F. A. Davis, Co., Vol. II, 283, 1937.

15. Walter, W., Snell, A. M., and Clagett, O. T.: Practice of Surgery (Dean Lewis), Vol. VIII, Chapt. 2, 1938.

16. Ladd, W. E., Botsford, T. W., and Curnen, E. C.: Primary peritonitis in infants and children, J. A. M. A., 113:1455, 1939.

17. Snodgrass, W. R.: Use and abuses of chemotherapy in streptococcal diseases, Practitioner, 144:16, 1940.

18. Banks, H. S.: Primary peritonitis in scarlet fever, Lancet, 236:983, 1939.

19. Maes, Urban: Personal communication.

20. Braasch, G.: New Orleans Graduate Medical Assembly.

DR. THOMAS HUNT*

RUDOLPH M. LANDRY†
NEW ORLEANS

I imagine almost all medical students pick out one or several men in their profession and try to duplicate their careers to a greater or lesser extent. However, few if any, at least in recent years, have attempted to follow the example of Dr. Thomas Hunt. And this is unfortunate, for that man was not only one of the best doctors in his part of the country, but also a great organizer. It was he who was largely responsible for establishing and building up what is known today as the Tulane University School of Medicine.

Dr. Thomas Hunt was born in Charleston, S. C. on May 18, 1808. He came from two very distinguished families, and he and his brothers carried the name to even greater glory. His paternal grandfather was Governor of Bahama and president of the King's Council at Nassau. His father, following more or less this same line, came to Charleston to establish his law practice. Here, he became a planter and a member of the Legislature of South Carolina, besides serving his original profession. Mr. Hunt married a woman of a distinguished South Carolina family, and had five children—all boys.

The life of young Thomas pointed strongly toward a legal career, as did his brothers'. However, in his late teens he deserted his family's profession and turned to the study of medicine. He attended the University of Pennsylvania and was graduated from this institution in 1829. He then returned to Charleston, but soon left to study at the great medical center of the world—Paris. He remained here for 18 months, but was then called home by the untimely death of his father. He now settled down to practice medicine in Charleston.

His first big opportunity presented itself when the brig Amelia was wrecked on Folly Island, just outside the harbor of Charleston. An epidemic of cholera broke out among the passengers of this ship, and Dr. Hunt was called upon for his services. He performed nobly, and worked untiringly until the epidemic was checked. However, the important part of this episode was that Dr. Warren Stone was a passenger of this ship, and a firm friendship was established that was to last for over 30 years.

In 1833 Hunt came to New Orleans to study cholera and established a fine reputation. He was soon elected surgeon to Charity Hospital, but relinquished this position because of its poor remuneration and because he had already formulated plans for establishing a medical school in New Orleans, and chose to devote his time to this undertaking.

Dr. Hunt worked unceasingly in organizing this school, and in 1834 the Medical College of Louisiana was founded. Dr. Hunt was made professor of anatomy and physiology and was elected dean.

It should be said that the new organization met a great deal of unexpected opposition in this city. Professional jealousy reared its ugly head, as a great many of the older doctors had not been invited to serve on the faculty. They united their efforts to break up the school, and this proved to be a serious affair since the prestige they enjoyed made them a powerful force in the city. Among the chief complaints was the fact that classes were conducted in English instead of French, and indeed, many of these men could not speak English. However, by the perseverance and hard work of the founders, the school opened and functioned successfully.

The records tell us that Dr. Hunt resigned from the institution in 1835, and although the exact reasons are unknown, it is stated that the resignation proceeded from "the most honorable and disinterested motives."

Until 1843 the medical college was financed through private enterprise, but now it received direct aid from the state. Although at this time Dr. Hunt was not officially connected with the school it is said that he was instrumental in obtaining this state aid. He worked further along this same line and in 1845 a new state constitution was drawn up and a clause included to establish a state university with the medical college a part of this university. Dr. Hunt was largely responsible for this action as he sacrificed his private practice to devote his activities to make the school a permanent state institution.

---

*Read before the Orleans Parish Medical Society, May 13, 1940.

†From the History of Medicine Society, Tulane University.

The medical school was now well established, and in 1850 a medical museum was founded that was said to be equal to the best in the United States and Europe. The school continued to prosper until the War Between the States forced it to suspend its activities.

After the outbreak of the war, Dr. Hunt went to Havana, as his health was very poor; but he was not happy there, largely due to his difficulty with the language. He then went to Bermuda and remained there until the end of the war, when he returned to New Orleans.

On his return, he was elected President of the University of Louisiana and immediately set to work to restore its former prestige. However, he overtaxed himself, and his health finally gave way altogether. In 1866, he became a confirmed invalid, and finally died on March 20, 1867.

With regard to his medical career, it must be said that Dr. Thomas Hunt was looked upon as one of the ablest doctors of his time. He served as professor in the chairs of anatomy and physiology; pathologic anatomy and clinical practice; physiology and pathology; and special pathologic anatomy. He was also president of the Physico-Medical Society.

Dr. Hunt was not a prolific writer, and in fact published very few medical articles. However, he enjoyed a fine reputation as a lecturer, and was popular with both the students and his colleagues.

The outstanding achievement in the life of Thomas Hunt was to promote medical education here in the South, and through his great interest, untiring spirit, and ability to deal with and understand people, he accomplished his purpose nobly and should be remembered as a great educator, doctor, and man.

In concluding this brief resumé of Dr. Hunt's activities, I would like to read the inscription on the marble plaque which Tulane University has erected in memory and appreciation of the efforts of Dr. Thomas Hunt:

"The faculty of the medical department of the University of Louisiana have erected this tablet in memory of Thomas Hunt, M. D., a founder of the Medical College of Louisiana in September, A. D. 1834, who was born in Charleston, South Carolina, May 18, 1808, and died in this city March 20, 1867. He was then third president of the University of Louisiana and professor of physiology and pathology in the medical department. In the loss of Professor Hunt the University of Louisiana mourns its most gifted and eloquent teacher, the profession of medicine, an accomplished, elevating, and independent leader, and in science, an enthusiastic and untiring votary. He brought to his instruction in physiology the resources of a cultivated and learned experience and his demonstrations in pathological anatomy, repeated for years in Charity Hospital, conducted by a master imbued with a profound knowledge of the subject and remarkably graceful and skillful in the use of the knife, constituted a course the most perfect ever delivered on this continent. The services of Professor Hunt as the presiding and executive officer of this department, his valuable donations to it, and the large increase in the resources of the institution, obtained mainly by his energy and his influence from the representatives of the state, have entitled him to this grateful memorial."

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio
For one year: Lucien A. LeDoux, M. D., Vice-chairman.
H. W. Kostmayer, M. D.
Secretary
For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF
John H. Musser, M. D.........................*Editor-in-Chief*
Willard R. Wirth, M. D.........................*Editor*
Edwin L. Zander, M. D.........................*Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D.....................*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

THE NEED FOR PHYSICIANS

Already the medical profession has felt the withdrawal from its ranks of many physicians who have been called into active service. Not only have doctors actually gone into the military services of the United States, but many of them who are still in civil life are doing much work for the Government on a purely voluntary basis. The medical personnel of the draft boards is an excellent example and probably makes up the largest group of physicians who are performing extra-military services. There are others, moreover, who have been called upon to help and aid in the defense program in other ways.

The medical profession is not only giving its services freely and willingly to the Government but there is a call for physicians for many activities which result from the speeding up in industry and the expenditures of large amounts of money. The demand for physicians, for the most part younger men who have not as yet been placed in their proper niche for life, is tremendous. There is need for younger doctors everywhere, but the supply at the present time does not seem to meet the demand.

It is earnestly hoped that the army will not call into active service any more medical men than are absolutely necessary. The life of the doctor who has been called into active service is in sharp contrast to the life he leads when he has the status of a civilian. He is not required to give many hours to his work, has much idle time and often the work two or three men are doing could be done by one without straining himself. It seems a great pity when there exists a heavy civilian demand for doctors that many a non-regular medical army officer is spending only a few hours a day in his actual professional duties. Most of the medical men do not need training unless they are going to serve directly with combat troops. Even then the training could and should be accomplished in a few months. The men who are serving in army hospitals will function very much as they do in civilian life; an orthopedic surgeon in an army hospital will do the same type of work that he would do in a private institution and so will the urologist, the surgeon, the internist or the head specialist. It is to be hoped most earnestly that the Surgeon General's office will not continue to call out more physicians than are needed unless there is an actual necessity for them. The army has asked the civilian doctors to cooperate; it is only fair that the doctors in civil life should likewise ask the army to cooperate in their problems.

INFLUENZA

The recent mild epidemic of influenza has apparently caused very much more disturbance in the minds of the laity than the actual severity and incidence of the disease would warrant. Of course it is obvious, that to the lay mind an epidemic of influenza implies a severe catastrophe such as occurred in 1918, consequently there has been a lot of unnecessary and needless worry. As a matter of fact the so-called epidemic has never reached epidemic proportions. It is true that there has been a considerable amount of sickness of a minor nature in the population of south Louisiana at least. This has been greatly exaggerated. In one of the current news weeklies from Alexandria, for example, it was reported there were 25,000 cases. Of course this is a gross overstatement. If the reported cases from New Orleans are any indication of the actual incidence of the disease, then influenza has been no more prevalent than it usually is at this time of the year. In most instances the expressions of the disease have been so minimal that the physicians of the state have not bothered to report any but the relatively severe cases.

Another feature of influenza that might be mentioned is that any respiratory tract infection, when there are a few cases of influenza in the neighborhood, is promptly labeled influenza. It is not only the respiratory tract infections, the common cold for example and the acute bronchitis of winter time that are dubbed influenza, but also any minor infection, be it systemic with a rise in temperature, is promptly accredited to influenza although it might be due to any one of a number or variety of micro-organisms, any one of which will produce atypical symptoms of the disease.

Influenza is a virus infection which is characterized by certain definite clinical expressions and which, without the concomitant superimposed streptococcic or bacterial invasion of the lung, will produce a few days of discomfort, miserableness and wretchedness in the patient but leaves no after effect of any moment. Extremely rare is a true virus pneumonia and in the present flare-up of the condition there have been few secondary pulmonary complications.

It might be well for physicians to stress the mildness of the present influenza and to ease the minds of their friends and patients by telling them that as it is now there is nothing about which to worry. An epidemic such as this might, in theory, be stopped if everyone could be segregated and separated from his fellowman. There is no such possibility. Merely the closing of the schools would accomplish nothing unless the children were kept from movies, churches and from playing together. These measures of course would be possible only in the event of an epidemic comparable to that which occurred twenty odd years ago.

THE TREATMENT OF EPILEPSY

In 1938 Merritt and Putnam[1] reported on the use of dilantin and sodium in the treatment of epilepsy. Their report was most interesting and resulted in the stimulation of many to employ this drug in the treatment of the epileptic patient. There have been half a dozen or more papers on this subject, all of which substantiated the original observation that dilantin is capable of reducing markedly the number of convulsive seizures that occur during the course of the day in the patient who has epilepsy. Many of these papers deal with the toxic effects of the drug as well as the improvement in the patient's general well being, alertness and personality. In order to demonstrate the value of this drug the most recent paper on the subject might be quoted. Ross and Jackson[2] studied 73 patients in the Caro, Michigan, State Hospital for Epileptics. To these patients they gave the drug in doses from 0.1 to 0.5 gram depending upon the number of seizures daily. Most of these people were young in age. The authors were particularly interested in studying the conduct of patients and what effect it had upon their alertness, initiative, behavior and cooperation. In analyzing results it might first be said that after an extended trial period of a year to a year and a half, it was noted in 65 per cent of patients the incidence of the seizures was reduced 75 per cent or more. In approximately half of the patients there was definite improvement in conduct, notably in those patients whose seizures were markedly diminished. However, there are a certain number, in whom, in spite of the reduction in the number of attacks, there was no improvement in their conduct. The patients were divided into the usual classification and it was found that the drug did not materially affect the responsiveness in any one group of epileptics over another. It is to be noted, however, that there was not as great a degree of improvement in the number of attacks in the encephalitic group whereas in the epileptics and the traumatic group, only seven in number, the reduction in the number of attacks was greatest.

The use of dilantin and sodium is to be enthusiastically encouraged. It is a drug with few if any toxic effect, with the power of markedly reducing the number of seizures and with the result that in many instances there is an improvement in deportment, initiative, interest and willingness to cooperate. Epilepsy is a most unfortunate condition and it goes without saying that any medication which will improve the saddening effects of this disorder should be employed regularly.

---

1. Merritt, H. H., and Putnam, T. J.: Sodium diphenyl hydantoinate in the treatment of convulsive disorders, J. A. M. A., 111:1068, 1938.
2. Ross, A. T., and Jackson, V.: Dilantin sodium: its influence on conduct and on psychometric ratings of institutionalized epileptics, Ann. Int. Med., 14:770, 1940.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

February 3. Orleans Parish Medical Society Board of Directors, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
February 4. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.
February 5. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.
February 6. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
February 10. Orleans Parish Medical Society, 8 p. m.
February 11. Eye, Ear, Nose and Throat Society, 8 p. m.
February 12. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Woman's Auxiliary, Orleans Club, 3 p. m.
February 17. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
February 18. Charity Hospital Medical Staff, 8 p. m.
February 19. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
The Orleans Tuberculosis Hospital Staff, 8 p. m.
February 20. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
February 21. I. C. R. R. Hospital Staff, 12 noon.
New Orleans Dispensary for Women and Children Staff, 8 p. m.
February 25. Baptist Hospital Staff, 8 p. m.
February 26. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.
February 27. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
February 28. L. S. U. Faculty Club, 8 p. m.

The following program was presented at the regular scientific meeting of December:

1. Plasma Therapy
By Drs. D. N. Silverman and R. A. Katz.
2. The Use of Plasma in Surgical Practice
By Dr. Mims Gage

During the month of December one joint scientific meeting was held with the Charity Hospital Staff. The following program was presented:

1. Hematuria Complicating Pregnancy
By Drs. E. L. King and John Menville
2. Spontaneous Mediastinal Emphysema
By Dr. Edward Matthews
3. Marfan's Syndrome......By Dr. Morris Shushan

4. Postoperative Atelectasis - Bronchoscopy
By Drs. Wolf, Fatter and Hays
5. Diagnostic Problem
By Drs. R. H. Turner and J. Magne

TREASURER'S REPORT

Bank Balance, November 30, 1940	$3,440.62
December Credits	1,731.32
Total Credits	$5,171.94
December Expenditures	1,470.71
Actual Book Balance, December 31, 1940	$3,701.23

During the month of December the Society had the misfortune of losing one of its active members, Dr. Frank J. Kinberger.

The following physicians were elected to membership in the Society during the month of December: Active: Drs. Robert A. Katz and John G. Pratt; Intern: Dr. Hardee Bethea.

NEWS ITEMS

At a recent meeting of the Central Psychiatric Society in Milwaukee, Dr. Gilbert C. Anderson was elected to membership.

Drs. Rena Crawford, Don Julian Graubarth and Suzanne Schaefer attended the annual national meeting of the American Academy of Pediatrics at Memphis. Dr. Graubarth served as secretary of the symposium on pneumonia.

Dr. John H. Musser recently attended the meeting of the sub-committee on medical education of the council on national defense in Washington. Dr. Musser also presented a paper, "Nephritis," before the county medical society in Montgomery, and spoke on "The Doctor and the Draft" at a meeting of the Fifth District Medical Society, Bastrop.

Dr. Daniel N. Silverman has been named South Regional Committeeman of the American Gastroenterological Association.

Drs. Daniel N. Silverman and Robert A. Katz are the authors of the chapter on "Gastric Analysis" in the Supplement on Biochemistry to Piersol's Cyclopedia of Medicine.

A symposium on complications of pregnancy, including diabetes, tuberculosis and heart disease, was given by the New Orleans Obstetrical and Gynecological Society in the Assembly Hall at Charity Hospital, Thursday, December 19 at 8 p. m.

At a recent staff meeting of the Mercy Hospital Dr. J. K. Howles presented a paper on "Vitamin Therapy in Dermatology"; and Dr. R. H. Bayley discussed "The Uses of the Electrocardiogram."

Dr. Edwin A. Socola spoke on "Preparing a Child for School" in an illustrated lecture sponsored by the Agramonte Premedical Society at Loyola University.

Dr. E. L. King presented a paper on obstetrical hemorrhages and prolonged labor at the Colorado State Medical meeting in Denver, September 14-16. A paper on obstetrical analgesia was also presented by Dr. King before the Texas State Medical Society meeting in Beaumont, November 11.

Dr. Daniel N. Silverman and Robert A. Katz are the editors of a symposium on plasma transfusion, appearing in the International Medical Digest, December and January issues.

Dr. M. Carl Wilensky was re-elected president of the New Orleans Zionist District at a recent meeting of this organization. Dr. Sidney Jacobs was named vice-president.

The Louisiana Association of Public Health Works held its annual meeting at the Jung hotel, December 9-11. Addresses of welcome were made by Drs. John H. Musser and C. Grenes Cole. Dr. George H. Hauser presented a paper on examinations for intestinal parasites at this meeting, and a round-table discussion of virus diseases and rickettsial disorders was led by Dr. John H. Musser and Dr. Roy H. Turner.

At a recent meeting of the Lamar County Medical Society at Meridian the following program was presented by members of this Society: "Management of Acute Spinal Injuries," by Dr. Gilbert C. Anderson; "Analgesia in Obstetrics," by Dr. Arthur Caire, Jr., "Combined Tetanus Diphtheria Immunization," by Dr. Julian Graubarth; and "Treatment of Prolapse of the Uterus," by Dr. Curtis H. Tyrone.

Drs. Alton Ochsner, Ambrose H. Storck and Guy A. Caldwell attended the meeting of the Southern Surgical Association, Hot Springs, December 10-12.

Dr. Alton Ochsner presented a paper on "Thrombophlebitis" before the meeting of the Washington Academy of Surgery, Washington, December 13.

Dr. R. Alec Brown was recently re-elected secretary-treasurer of the Louisiana Association of Public Health Workers.

Dr. Wm. H. Gillentine was recently appointed state health consultant of the National Youth Administration.

HOSPITAL NEWS

The New Orleans Dispensary for Women and Children has moved to its new quarters, 609 Jackson Ave., and can accommodate 50 beds.

The increase in bed space qualifies the dispensary for membership in the American Hospital Association.

The French Hospital has renovated its operating room. Among the new equipment is a Montreid Table; the mechanism can be handled by the anesthetist in adjusting the table to any position desired.

LIBRARIAN'S REPORT

During November, 276 volumes were added to the Library. Of these, 266 were received by binding, 6 by gift and 4 from the New Orleans Medical and Surgical Journal. New titles of recent date are listed below.

The Library has loaned to physicians during the month 1,281 books and journals. An additional 969 volumes have been loaned to students for overnight use, giving a total circulation of 2,250 for November.

Members of the staff have collected material on the following subjects during the month at the request of physicians:

Gastric meals and function tests
Paul Michinard—life and work
Vertigo
Benign tumors in the newborn
Ocular complications of poliomyelitis
Diabetes in pregnancy
Quality point ratio in grading medical students

NEW BOOKS

American Association on Mental Deficiency: Proceedings and Addresses, 1933.

American Therapeutic Society: Transactions, 1940.

Becker, S. W.: Modern Dermatology and Syphilology, 1940.

Manson, Patrick: Tropical Diseases, 1940.

Pelouze, P. S.: Office Urology, 1940.

Rogers, Leonard: Leprosy, 1940.

Southern Surgical Association: Fifty-year Index, 1940.

United States National Institute of Health: National Health Survey, 2v., 1935-36.

Edwin L. Zander M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	**Date**	**Place**
East Baton Rouge	**Second Wednesday of every month**	**Baton Rouge**
Morehouse	**Second Tuesday of every month**	**Bastrop**
Orleans	**Second Monday of every month**	**New Orleans**
Sabine	**First Wednesday of every month**	
Second District	**Third Thursday of every month**	

1941 ANNUAL MEETING

The Shreveport Medical Society is actively making plans for the 1941 Annual Meeting to be held in Shreveport, April 21-23, and from all indications a fine meeting is anticipated. You will recall that Shreveport was one of the bright spots of the country during the years of the depression and continues to be a town to be remembered. There appears to be every prospect that the Louisiana State Medical Society meeting in 1941 will be bigger and better, more interesting and more enjoyable than any held here in the past. All of our committees are enthusiastic and looking forward to a highly successful meeting.

The Committee on Commercial Exhibits is apparently going to have enough exhibits to take care of whatever financial needs we may have, when added to the amount allowed by the State Society for expense of the convention.

The Chairman of the Committee on Scientific Exhibits reports that he has sent out applications for exhibit space to prospective exhibitors. All members who desire to exhibit should send information concerning their exhibit to Dr. W. R. Mathews, chairman of this committee.

We feel very fortunate in securing every cooperation from the Washington-Youree Hotel, headquarters for the meeting. The Chairman of the Committee on Hotels, Dr. C. R. Gowen, will be glad to make reservations at the hotel for members of the Society if they will communicate with him.

Below is listed personnel of the various committees on arrangement for the meeting.

General Chairman—Dr. R. T. Lucas.

Advisory Committee—Dr. J. M. Gorton, Chairman; Drs. W. H. Browning, C. B. Erickson, B. C. Garrett, A. A. Herold, J. E. Knighton, W. P. Taylor, and T. B. Tooke.

Banquet and Luncheons—Dr. J. R. Stamper, Chairman; Drs. R. B. DeLee, and C. H. Webb.

Commercial Exhibits—Dr. H. J. Quinn, Chairman; Drs. J. B. Birdwell, and W. J. Norfleet.

Entertainment—Dr. S. G. Wolfe, Chairman; Drs. J. R. Brown, and J. V. Hendrick.

Finance—Dr. D. R. McIntyre, Chairman; Drs. Dorf Bean, and W. R. Harwell.

Golf—Dr. C. P. Rutledge, Chairman; Drs. W. B. Heidorn, and I. B. Rougon.

Halls and Meeting Places—Dr. P. D. Abramson, Chairman; Drs. P. R. Gilmer, and J. E. Heard.

Hotel Reservations and Reception—Dr. C. R. Gowen, Chairman; Drs. W. H. Browning, A. P. Crain, B. C. Garrett, John Hendrick, A. A. Herold, and W. S. Kerlin.

Publicity—Dr. J. M. Bodenheimer, Chairman; Drs. S. W. Boyce, and M. D. Hargrove.

Registration, Signs and Badges—Dr. W. R. Harwell, Chairman; Drs. L. F. Gray, O. C. Rigby, and J. A. Wilkinson.

Scientific Exhibits—Dr. W. R. Mathews, Chairman; Drs. R. H. Riggs, and P. W. Winder.

Woman's Auxiliary—Mrs. J. E. Heard.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY, MARCH 3-6, 1941

In the January issue of the Journal it was mentioned that among the eighteen outstanding guest speakers who would take part in the program were Drs. Paul Dudley White, Paul A. O'Leary, Owen H. Wangensteen, Ernest E. Irons, Maurice C. Pincoffs, Charles F. McKhann and Cecil S. O'Brien.

All of the speakers are equally well known and prominent in medical circles. Dr. Richard W. TeLinde, speaker in gynecology, is Professor of Gynecology at the Johns Hopkins University and Chief Gynecologist of the Johns Hopkins Hospital. Dr. Louis E. Phaneuf, Professor of Obstetrics and Gynecology at Tufts College Medical School will give four talks during the meeting and will also have three outstanding motion pictures scheduled on the program.

The Section on Pathology is very fortunate in having Dr. Lawrence W. Smith as their guest. Dr. Smith is Professor of Pathology at Temple University School of Medicine, and Pathologist and Director of Laboratories, Temple University Hospital. He is greatly interested, and has done outstanding work, in the treatment of cancer with low temperatures. The topics of Dr. Smith's talks will be, "Reduced Temperature 'Refrigeration' as an Adjunct to the Treatment of Malignant Disease" and "Observations on the Physiologic Mechanism during Generalized 'Refrigeration'." In addition to these lectures he will conduct a Clinico-pathologic Conference with Dr. Frederick A. Coller. Dr. Coller is Professor of Surgery and Chairman of the Department of Surgery at the University of Michigan Medical School.

Dr. W. Wallace Morrison, Clinical Professor of Otolaryngology and Chief of Clinic at the New York Polyclinic Medical School and Hospital, will talk on subjects of interest to the general practitioner as well as to the men specializing in otolaryngology. Dr. George F. Cahill, guest urologist, has selected for his subject, "The Present Urological Conception of Nonspecific Urinary Infections" and "Adrenal Cortical Tumors: Their Types, Diagnosis and Therapy." The Section on Radiology will have for their guest Dr. Leo G. Rigler, Professor and Head of the Department of Radiology and Physical Therapy. Dr. Rigler is the author of articles on roentgen diagnosis and of the textbook "Outline of Roentgen Diagnosis." Dr. Eugene L. Bishop, Director of the Health Program of the Tennessee Valley Authority, will show an interesting motion picture on "Coordination of Malaria Studies and Control on Impounded Waters" followed by an address on the same subject.

The other speakers are Dr. Arthur H. Ruggles, Superintendent of the Butler Hospital and Lecturer in Psychiatry at Yale University School of Medicine and Brown University Medical Department; Dr. George E. Binkley, attending Surgeon in Charge of the Rectal and Colon Department, Memorial Hospital for the Treatment of Cancer and Allied Diseases, and Instructor of Medicine, Cornell University Medical College; and Dr. Paul C. Colonna, Professor of Orthopedic Surgery, University of Oklahoma School of Medicine.

It will be seen from the list of speakers that the Assembly will be of great interest to both specialists and general practitioners. The registration fee of ten dollars covers all features, including four daily round-table luncheons and a smoker.

BIENVILLE PARISH MEDICAL SOCIETY

Drs. S. S. Speer, F. F. Wimberly and V. W. Fletcher were hosts for a meeting at Ringgold, December 17, of the doctors of Bienville Parish. The meeting was held in the dining room of the Allum home, where supper was served.

Dr. M. D. Hargrove, of Shreveport, Councilor of the Fourth District, served as chairman until officers were elected in the reorganization of the Bienville Parish Medical Society.

Dr. Edwin L. Zander, of New Orleans, spoke on "Office Gynecology"; Dr. D. N. Silverman, of New Orleans, spoke on "Common Errors in Gastric Diagnosis"; Drs. P. T. Talbot, A. Penn Crain, and A. Penn Crain, Jr., were also guests on this occasion.

The officers elected for the coming year were Dr. S. S. Speer, of Ringgold, president; Dr. C. L. Langford, of Gibsland, vice-president; Dr. V. W. Fletcher, of Ringgold, secretary-treasurer. Dr. Fletcher was also chosen delegate to the State Society meeting.

V. W. Fletcher, M. D., Sec.

NEW OFFICERS
1941

JACKSON-LINCOLN-UNION

President: Dr. Ragan Green, Ruston
Vice-President: Dr. S. L. White, Ruston
Secretary-Treasurer: Dr. J. J. Bennett, Ruston

POINTE COUPEE PARISH

President: Dr. J. W. Plauche, Morganza
Vice-President: Dr. J. M. Mosely, Lakeland
Secretary-Treasurer: Dr. R. A. Kelly, New Roads

WEBSTER PARISH

President: Dr. Rupert Butler, Springhill
Vice-President: Dr. R. E. Smith, Minden
Secretary-Treasure:r Dr. B. A. Norman, Cotton Valley

LAFAYETTE PARISH

President: Dr. E. E. Guilbeau, Carencro
Vice-President: Dr. L. A. Prejean, Scott
Secretary-Treasurer: Dr. Henry Voorhies, Lafayette

MOREHOUSE PARISH

President: Dr. W. V. Garnier, Bastrop
Vice-President: Dr. J. L. Rawls, Bastrop
Secretary-Treasurer: Dr. F. B. Ogden, Bastrop

IBERIA PARISH

President: Dr. J. D. Martin, New Iberia
Vice-President: Dr. H. M. Flory, New Iberia
Secretary-Treasurer: Dr. C. L. Mengis, New Iberia.

AVOYELLES PARISH

President: Dr. H. J. Kaufman, Jr., Cottonport
Vice-President: Dr. W. F. Couvillion, Marksville
Secretary-Treasurer: Dr. K. A. Roy, Mansura

TANGIPAHOA PARISH

President: Dr. J. DeL. Thames, Hammond
Vice-President: Dr. R. G. Korniker, Ponchatoula
Secretary-Treasurer: Dr. S. J. Cali, Hammond.

NEWS ITEMS

Dr. Herald R. Cox, Principal Bacteriologist of the United States Public Health Service, stationed at the Public Health Service Rocky Mountain Laboratory, Hamilton, Montana, has been unanimously nominated by The Theobald Smith Award Committee to receive the 1940 Theobald Smith award in medical science. This honor is conferred on Doctor Cox for his outstanding research in the rickettsial diseases, resulting in the development of a new technic for the preparation of protective vaccines against Rocky Mountain spotted fever and typhus fever. The presentation was made at the meeting of the American Association for the Advancement of Science held in Philadelphia during December 1940 and January 1941.

The American Association for the Study of Goiter again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association which will be held at Boston, Massachusetts, May 26-28, providing essays of sufficient merit are presented in competition.

Dr. Ambrose H. Storck attended the recent meeting of the Southern Surgical Association at Hot Springs, Va., and presented a paper on "Abdominal Injuries."

Assistant Surgeon Ralph W. Pagel has been relieved of duty at Galveston, Texas, and ordered to proceed to the U. S. Marine Hospital, New Orleans.

Passed Assistant Surgeon Joseph Pasternack has been relieved at New Orleans, and ordered to proceed to the U. S. Marine Hospital, Staten Island, New York, for duty.

There is a physician needed for one year at Sunset, Louisiana. Those interested should communicate with Dr. J. L. Prejean or Mr. Paul A. Bechet, of Sunset.

The International College of Surgeons will hold its Fifth International Assembly in Mexico City, August 10-14, 1941, in response to the invitation of the Mexican Government. With the assembly will be scientific exhibits of the latest advances in surgery and commercial demonstrations of the newest equipment.

The general oral and pathologic examinations of the American Board of Obstetrics and Gynecology for all candidates (Groups A and B) will be conducted at Cleveland, Ohio, by the entire Board from Wednesday, May 28, to Monday, June 2, 1941, inclusive, prior to the opening of the annual meeting of the American Medical Association in Cleveland, Ohio.

THE POST GRADUATE SURGICAL ASSEMBLY

The twelfth annual meeting of the Post Graduate Surgical Assembly and the Southeastern Surgical Congress will be held in Richmond, Virginia, March 10-12, 1941. A splendid list of speakers have accepted invitations to address the Assembly. A few of the names that are outstanding include Dr. Irvin Abell and Dr. Fred W. Rankin of Kentucky; Dr. Temple S. Fay of Philadelphia; Dr. Charles F. Geschickter of Baltimore; Dr. Frank H. Lahey of Boston and many others. The Louisiana men who are represented on the provisional program include Dr. Conrad G. Collins and Dr. Alfred B. Longacre. From Mississippi will come Dr. Harley R. Shands of Jackson and Dr. M. M. Snelling of Gulfport.

For further information, those interested should address Dr. B. T. Beasley, Secretary-Treasurer, 701 Hurt Building, Atlanta, Georgia.

The Executive Board of the American Public Health Association announces the dates of the seventieth annual meeting as October 14-17, 1941. The meeting place is Atlantic City, New Jersey. Headquarters for the meeting will be the Convention Hall. Residence headquarters will be the Hotel Traymore.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Bureau of Epidemiology of the Louisiana State Board of Health for the week ending December 14 showed the first large influx of influenza cases; for this particular week there appeared 321 cases. Other diseases reported in number greater than ten were syphilis 274, gonorrhea 34, tuberculosis 29, cancer 25, pneumonia 22 and diphtheria 11. This week there was one patient with typhus fever in Caddo Parish and one in Orleans Parish. For the week closing December 21, the number of influenza cases had risen to such a great height that apparently the Bureau of Epidemiology had to figure in round numbers because there was the greatest number of cases listed that has ever been listed for any one disease since these reports began to appear in the Journal; 8,000 cases were reported. Following in order of frequency were syphilis with 142 cases, pneumonia 58, gonorrhea 32, cancer 30, hookworm infestation 25, typhoid fever 16 and malaria 14. Three patients with poliomyelitis were discovered this week; one from East Baton Rouge Parish, one from Iberville and one from Orleans. The week which terminated December 28 still showed a large number of cases of influenza, 6,101 being reported. This was followed by syphilis 196, hookworm 52, pneumonia 49, gonorrhea 20 and cancer 17. Except for one case of typhus fever in Orleans Parish, no unusual diseases were reported. The actual number of cases of influenza was materially diminished the first week of January, with 3,235 cases reported, followed by syphilis 117, pneumonia 59, gonorrhea 40, tuberculosis 16, cancer 14 and typhoid fever 12. The incidence of pneumonia came close to the five year average. There was an increase in cases of influenza the week ending January 11; 4,983 being reported, followed by syphilis 177, pneumonia 44, gonorrhea 32, pulmonary tuberculosis 21 and cancer 14. One case of typhus fever was found in Calcasieu Parish.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, reports that for the week which ended December 14 there were 138 deaths in the City of New Orleans, divided 81 white and 57 negro, with 18 of these deaths occurring in children under one year of age. These figures compare very closely with the figures of the previous week. For the week which was completed December 21, there were only 130 deaths reported as contrasted with the three year average for the corresponding week, which was 170. Seventy-three of the citizens of New Orleans who died this week were white and 57 negroes and 23 were under one year of age. There was a slight increase in the number of deaths for the week ending December 28. Of the 155 deaths which occurred this week, 105 were in the white population and 50 in the negro. This is a considerably smaller number of deaths in the negro population than usually occurs. Thirteen of the recorded deaths were infants under one year, divided seven white and six colored. The rather sharp increase in the number of deaths in New Orleans the week ending January 4 might reflect in part from the very high incidence of influenza in the city at this time. There were 193 people who died in New Orleans, divided 126 white, 67 negro, with 23 infant deaths.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Parish Medical Society held its monthly meeting on October 10, at the Lotus Club, with Mrs. A. D. Tisdale presiding.

The hostesses at this time were Mesdames W. L. Smith, C. P. Gray, Sr., H. V. Collins, and A. L. Peters.

After the roll call and the reading of the minutes, Mrs. O'Donnell, as Chairman of the *Hygeia* Committee, called on Mrs. Perot, Mrs. Peters, and Mrs. McHenry to read papers explaining all about *Hygeia*. The names of the members subscribing to *Hygeia* were read and all members were urged to subscribe if possible and to help get other subscriptions.

Mrs. McHenry read a card calling the attention of the auxiliary to the radio program sponsored by the American Medical Association called "Doctors at Work," on the air every Wednesday evening at 10:30 E. S. T. over NBC. This program will last from November 13, 1940 to June 4, 1941.

The monthly luncheon and business meeting was held at the Lotus Club on November 14. Hostesses on this occasion were Mesdames Pracher, Holloman, Talbot, and Frost.

Mrs. A. D. Tisdale presided over the meeting and read the "Ten Commandments for a Doctor's Wife."

After the reports of the committees, Mrs. Clifford Johnson gave a most interesting review of, "Dynasty of Doctors."

Mrs. Elizabeth Wright, President of Woman's Auxiliary of St. Petersburg, Fla., was our guest at this meeting.

The December luncheon and business meeting was held on Thursday, the twelfth, at the Lotus Club with Mesdames A. G. McHenry, Leon Titche, D. I. Hirsch, Glen Gallaspy, and F. J. Willey as hostesses.

Mrs. A. D. Tisdale presided over the meeting and our honored guests were Mrs. Roy Carl Young of Covington, President of the Woman's Auxiliary to the Louisiana State Medical Society, and her sister, Mrs. C. T. Law, of Shreveport.

After reports from the officers and chairmen of committees, Mrs. Young spoke to us on the aims and activities of the auxiliary, which speech was followed by a round-table discussion.

The luncheon table was beautifully decorated with autumn leaves and flowers. The center piece was a large basket lined with autumn leaves and filled with fruit.

Mrs. C. B. Flinn,
Publicity Secretary.

CADDO PARISH

The November meeting of the Shreveport Medical Auxiliary was held at the Department Club.

After a brief business meeting, presided over by the president, Mrs. C. B. Erickson, a most interesting program was presented. Dr. George Wolfe and Miss Sonya Mattus were the guest speakers for the afternoon. Dr. Wolfe spoke on "Infantile Paralysis," in which he discussed the history, pathology, symptoms, treatment and other facts concerning the disease. Miss Mattus gave an informative talk on "Books for Children."

The tea table, presided over by Mrs. L. H. Pirkle and Mrs. I. F. Hawkins, was centered with a lovely arrangement of fruit, around which four cornucopias filled with bronze, yellow and red chrysanthemums were placed. Other seasonal flowers throughout the reception rooms carried out the Thanksgiving and autumn setting.

ST. LANDRY PARISH

The annual card party given by the Woman's Auxiliary was held on October 25 at the Community Center in Opelousas for the benefit of the anti-tuberculosis fund of the St. Landry Parish Medical Society. Fifty beautiful prizes were donated by business firms of Opelousas. Contract and auction bridge, five hundred and poker tables claimed the guests, with a prize awarded at each table; the net proceeds of the evening were ninety-five dollars.

The Committee on Arrangements for the party included Mesdames G. D. Rackley, S. J. Rozas, E. J. Petitjean, L. Lazaro, Gerald Bertinot, and J. L. Prejean. Mrs. F. C. Shute is president of the auxiliary.

RAPIDES PARISH

The Woman's Auxiliary to the Rapides Parish Medical Society held its first meeting of the season on Friday morning, October 11, 1940, at the home of Mrs. J. A. White, Sr., 1740 Jackson Street, Alexandria, with Mrs. J. A. White, Jr. as co-hostess.

In the absence of the president the meeting was presided over by Mrs. Earl K. Jones, first vice-president. Mrs. H. O. Barker, one of our past presidents, was the speaker and made a very interesting talk on "Preparedness from a Medical Standpoint."

Aims and projects were discussed including *Hygeia* and work for the Red Cross, which latter was adopted as a project for this year. Auxiliary members will work for the Red Cross in the way of making surgical dressings and garments, knitting and other activities.

One new member, Mrs. Geza Aczel, was introduced.

Mrs. Wm. J. Rein,
Publicity Chairman.

Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Press and Publicity Chairman.

BOOK REVIEWS

Savill's System of Clinical Medicine: Edited By Agnes Savill, M. D., and E. C. Warner, M. D., F. R. C. P. Baltimore, William Wood & Co., 1939. Pp. 1141. Price $9.00.

This eleventh edition is a thorough revision of a book that has been found invaluable to students and practitioners of medicine for over thirty years. It is an attempt to approach medicine from the clinical side, and, consequently, the plan of the book is to trace "from effect (symptoms) to cause (the morbid cause) in operation." General principles underlying methods in diagnosis, prognosis and treatment are discussed. The physiognomy of disease is noted and the symptoms and signs arising in the organs and regions of the body and extremities are considered. The diseases arising from the symptoms and signs observed are dealt with clearly and fully. The book is well written and the illustrations are many and good. It is a fine reference work.

I. L. Robbins, M. D.

Clinical Diabetes Mellitus and Hyperinsulinism: By Russell Wilder, M. D., Ph. D., F. A. C. P. Philadelphia, W. B. Saunders Co., 1940. Pp. 459. Price $6.00.

The book is divided into two parts. The first and greater part deals with diabetes mellitus. The author places greater emphasis on the clinical aspect of this illness and considers in detail diagnosis, treatment, and the care of complications. Most of the commonly associated diseases, such as hemochromatosis, diseases of the thyroid gland complicating diabetes, diseases of other endocrine glands complicating diabetes, as well as arteriosclerosis and diseases of the heart, are fully described. One chapter is devoted to diabetes in pregnancy and another to surgical operations in diabetes, two conditions which put to the highest test our knowledge of diabetic management. The practicability of the volume is enhanced by the inclusion of diabetic diets and tables of food values.

The last section of the book is concerned with hyperinsulinism. Diagnostic criteria are enumerated, treatment both medical and surgical is discussed and evaluated. Individual case reports are included so that the reader may more fully appreciate the clinical picture.

The book is good reading, valuable as a reference, and a worth-while addition to any practitioner's library.

Norton Voorhies, M. D.

Handbook of Hearing Aids: By A. F. Niemoeller, A. B., M. A., B. S.; foreword by Harold Hays, M. D., F. A. C. S. New York, Harvest House, 1940. Pp. 156. Price $3.00.

This book gives a short description of practically all of the modern electrical hearing aids, both vacuum tube and carbon types. There are useful chapters on the care of hearing aid batteries, how to test hearing aids, and how to use hearing aids. Also there is a chapter on how to buy hearing aids which should be very helpful to the hearing aid purchaser, but probably not to the liking of some of the high pressure salesmen that we see today.

The book is recommended for study to both otologists and the deafened individual contemplating purchasing a hearing aid.

H. L. Kearney, M. D.

The Chinese Way in Medicine: By Edward H. Hume. Baltimore, Johns Hopkins Press, 1940. Por; pp. 189. Price $2.25.

This is another volume in the excellent series of the Hideyo Noguchi Lectures. In its 189 pages only a brief glimpse of the enormous expanse of Chinese medical history can be presented, but this glimpse is sufficient clearly to reveal the predominant influence of tradition on current medical practice. We are shown not only what the Chinese practice in medicine but why they do so.

In Lecture I (The Universe and Man in Chinese Medicine), Dr. Hume dilates upon the Chinese attitude toward life, death, health and disease. All life, animal, vegetable, and human, is part of a totality in which disease and death are simply normal components. The individual's quest for health is to be achieved by bringing his spiritual and bodily being into harmony with all the forces of the universe.

In Lecture II (The Founders and Chief Exemplars of Chinese Medicine), Dr. Hume draws attention to a few of the illustrious medical personalities of past centuries, whose names and deeds are widely known throughout China today, not only by scholars and physicians, but workmen and farmers.

In Lecture III (Some Distinctive Contributions of Chinese Medicine), we discover that the Chinese early established medical libraries and wrote exhaustively upon such topics as leprosy, venereal disease, smallpox, typhoid, beriberi, gynecology, and ophthalmology. Medicaments reached amazing development; among those herbals and minerals still in use and of permanent value are stramonium, ephedrine, iodine, chaulmoogra oil, and arsenic. Observation and inquiry were emphasized three thousand years before Sydenham. Acupuncture was stressed, while the doctrine of the pulse was so elaborated that nearly the whole system of medicine centered around it.

Although Chinese medicine was predominantly philosophic in conception, there did evolve procedures of real and permanent value for both diagnosis and treatment. These three lectures showing the way thereof form an edifying and interesting book.

R. S. Munger, M. D.

The Foot and Ankle, Their Injuries, Diseases, Deformities and Disabilities: By Philip Lewin, M. D., F. A. C. S. Philadelphia, Lea & Febiger, 1940. Pp. 620. Price $9.00.

This new book on the foot and ankle is a timely one, inasmuch as it is the only one of the several recently published which attempts to cover all the problems of the lower extremity from an orthopedic viewpoint, and still retains enough simplicity to be used as a guide to diagnosis and treatment by the average man, who possesses no special knowledge or training along orthopedic lines.

The basic anatomy, physiology and mechanics of the foot and ankle are well described, and the application of these basic principles of function is made throughout the book. The major portion of the volume concerns itself with a discussion of almost every conceivable disturbance which might be encountered in the region of the foot and ankle. The extensive character of the subject matter taken up alone makes the book invaluable for any student of orthopedics, and of extreme value as a reference book for anyone who must see and treat the foot and ankle in his office practice occasionally.

The treatment of the various disorders is discussed under each chapter and subdivision heading, making for simplicity in locating a single subject. The chief criticism of the book, however, can be directed toward this same phase. In describing operative procedures or conservative methods of treatment, too often a large group of opinions and procedures will be presented, but no attempt is made to evaluate them, or to aid the reader in judging just which of the various methods offered he should try in any given case. True, to the man who is interested, it offers a quick, accurate and concise resumé of the information available today, and the excellent bibliography can be used for further study if desired.

The book is well written, readable and accurate in its information, and furnishes a better reference on the foot and ankle in the reviewer's opinion than any other book published to date.

Frank J. Cox, M. D.

PUBLICATIONS RECEIVED

The Blakiston Company, Philadelphia: Recent Advances in Endocrinology, by A T. Cameron, M. A., D. Sc. (Edin.), F. I. C., F. R. C. S. The Anatomy of the Eye and Orbit, by Eugene Wolff, M. B., B. S. (Lond.), F. R. C. S. (Eng.).

The Brown-White Company, Kansas City, Mo.; Poems of a Doctor, by Edward Lovelle Stewart, M. D.

The Commonwealth Fund, New York City: Ways to Community Health Education, by Ira V. Hiscock, with the collaboration of Mary P. Connolly, Marjorie Delavan, Raymond S. Patterson, and William H. F. Warthen. Rheumatic Fever, by May G. Wilson, M. D. Mosquito Control, by William B. Herms, Sc. D., and Harold F. Gray, Gr. P. H. Insulin, Its Chemistry and Physiology, by Hans F. Jensen, Ph. D.

Doubleday, Doran and Company, Inc., New York City: Strange Malady, the Story of Allergy, by Warren T. Vaughn, M. D.

Froben Press, New York City: The Emperor's Itch, by Reuben Friedman, M. D.

Funk & Wagnalls Company, New York City: Growing Out of Babyhood, by Williams S. Sadler, M. D., F. A. P. A., and Lena K. Sadler, M. D., F. A. C. S.

Harvard University Press, Cambridge, Mass.: The Endocrine Function of Iodine, by William Thomas Salter.

The Macmillan Company, New York City: Berkeley Moynihan, Surgeon, by Donald Bateman. The Neuroses in War, by several authors under the editorship of Emanuel Miller, M. A. (Cantab.), M. R. C. P., D. P. M. (Cambs), with a concluding chapter by H. Crichton-Miller, M. D., F. R. C. P.

C. V. Mosby Company, St. Louis: Clinical Pellagra, by Seale Harris, M. D., assisted by Seale Harris, Jr., M. D.

Oxford University Press, New York City: Carlos Finlay and Yellow Fever, by Carlos E. Finlay, M. D., F. A. C. S., edited by Morton C. Kahn, M. A., Ph. D., Sc. D.

Charles C. Thomas, Springfield, Illinois: The Medical Reports of John Y. Bassett, M. D., the Alabama Student, with an introduction by Daniel C. Elkin, M. D. The Role of the Liver in Surgery, by Frederick Fitzherbert Boyce, B. S., M. D.

The Williams & Wilkins Company, Baltimore: A Guide to Human Parasitology, by D. B. Blacklock, M. D. (Edin.), D. P. H. (London); D. T. M. (Liver.), and T. Southwell, D. Sc., Ph. D., A. R. C. Sc., F. Z. S., F. R. S. E.

The John C. Winston Company, Philadelphia: Test Tubes and Dragon Scales, by George C. Basil, M. D.

The Year Book Publishers, Inc., Chicago: The 1940 Year Book of Industrial and Orthopedic Surgery, edited by Charles F. Painter, M. D. The 1940 Year Book of Pathology and Immunology, edited by Howard T. Karsner, M. D., and Sanford B. Hooker, A. M., M. D.

New Orleans Medical
and
Surgical Journal

Vol. 93 MARCH, 1941 No. 9

PROGRESS IN THE TREATMENT OF MENTAL DISEASE*

FREDERICK P. MOERSCH, M. D.†
ROCHESTER, MINN.

I deeply appreciate the privilege and the honor of being permitted to pay homage to the memory of a great man. Dr. Chaillé was a man of action and held to the Hippocratic dictum, "Where there is love for humanity there will be love for the profession." It is with a feeling of his spiritual presence that I venture to recount the advances that are being made in the treatment of mental diseases.

The history of psychiatry truly represents the history of civilization. Growth in this field has been slow and painful. Cruel and tragic centuries darkened the pages of progress but the trail blazers of psychiatry could not be denied. From the magic and sorcery of antiquity to our present knowledge of cerebral function represents a long and hard earned advance. Today we know much of the chemistry, and the functions of the nervous system but a century hence the facts of today may be the fallacies of tomorrow. The history of psychiatry contains many sad chapters that we would gladly forget. In recalling them, the achievements of the crusaders of progress stand out more clearly in their true glory. Today, as in ages past, the care of persons afflicted with mental disease presents a challenge to the physician and to society.

Our knowledge of prehistoric man is limited, but if the historians are correct, our ancient forebears found time between mysterious incantations and black magic to conceive trephination of the skull. At this late date the reasons for their use of trephination are not entirely clear but if conjecture is correct it was used not only because of local injury to the head but for the purpose of liberating evil spirits from the poor victims of some demoniacal illness.

The dawn of the ancient period found man the victim of superstition of magic and of sorcery. The golden age of Greece, with Hippocrates, Plato, Aristotle, and other great philosophers, brought some light to the confused concept of mind and body. Then as now customs died hard, especially when an acknowledged authority such as Galen failed to keep step with the advances of his time but held steadfastly to the traditions of the past. Whatever slight progress had been made up to the time of Galen seems to have come to a standstill. The following centuries were dark years for psychiatry, if not for the world with its wars, its black death and its witches.

Time moves on, and as we turn the pages of the succeeding centuries we see that the many actors on the ever changing stage of life left but little favorable imprint on the psychiatric records of the time. Step by step some inward urge would make itself felt. Here and there a light would penetrate the mist. The world was straining with its pent-up energies and needed but a spark to kindle the glowing embers of conquest. In rapid succession important events paved the way for a general wave of progress. Gunpowder, printing, Columbus, Copernicus and Luther represent but a few of the stirring forces that were revolutionizing the conduct of man. In this period of turmoil and strife, patients who were mentally ill fared poorly, and psychiatry was slow to follow in the footsteps of progress and remained shrouded in mystery.

---

*Read before the Orleans Parish Medical Society, New Orleans, Louisiana, December 3, 1940.

†From the Section on Neurology, The Mayo Clinic, Rochester, Minnesota.

It must be kept in mind that psychiatry as a science was as yet not born. Social necessity determines that those who are mentally ill should be isolated and today we hang our heads when we recall the horror and tragedy enacted in the name of science. Pinel, Tuke and Esquiral saw the injustice of the then prevailing methods for the care of those who were mentally afflicted and they stand today as the disciples of the humanitarian care of these unfortunate people.

The nineteenth century might well be looked upon as the beginning of psychiatry as a separate science. The main strides during this period consisted in improved institutional care of insane persons. It was necessary to educate society to the need of such care and in this country Dorothea Dix will forever be honored for her unceasing efforts and devotion to this cause. The improvement in the care of patients who were mentally ill was a great step forward but during this period relatively little progress was made in the development of new therapeutic measures which proved to be of any lasting value.

SPECIAL THERAPY

At the turn of the present century renewed efforts in therapy were made along many lines, but progress appeared to meet insurmountable obstacles and failure seemed inevitable. Just as the darkness was sweeping on to oblivion, a bright ray of light appeared upon the fading horizon. In 1917, Wagner von Jauregg announced the successful treatment of general paralysis of the insane by the use of malarial therapy. The stimulus given the psychiatrist by von Jauregg's work was to last for many years. True enough, he was treating an organic disease, but the question arose as to whether other mental diseases might not have an organic basis. Immediately many and varied studies were undertaken. The body structure was carefully searched for possible abnormal patterns. The organs of the body were weighed and the anomalies in development were noted. Anthropometric indexes revealed certain bodily types, and the pyknic habitus (short and fat) and the leptosome habitus (tall and thin) took their place in the classification of individuals. These advances, however, failed to unveil any hidden therapeutic secrets. Not to be discouraged, psychiatrists turned their efforts to physical and psychic therapy. Hospitals were equipped with departments for physical therapy, occupational therapy, and psychotherapy. Efforts were made to remove foci of infection and the causes of so-called auto-intoxication in the hope of aiding patients who had mental diseases. All of these procedures placed the treatment of mental disease on a high plane and added much to the comfort of the patient. It also served to continue the slowly waning stimulus which had resulted from the inspiration received from the work of von Jauregg. Vienna's influence was also kept alive by the students of Freud, who carried his teachings to all corners of the world.

In the early part of the decade 1930 to 1939 inclusive, the use of various forms of prolonged narcosis was instituted in the hope of aiding the psychoneurotic and the psychotic patient. Paraldehyde, chloral hydrate, amytal, and similar drugs were employed to produce the long sleep. It was hoped that this type of treatment would lull the misshapen fantasies and bring peace to the disturbed mind. Although some favorable results were obtained with this form of therapy, it is now employed in certain mental states, mainly, as an aid to mental analysis. During these years other forms of therapy came and went without leaving a lasting impression, either on the patient or on investigative workers.

The glory that was Vienna's was again to claim the attention of the world. In the very halls made sacred by von Jauregg, inspiration still lingered and the spark was again ignited by Sakel, who in 1934 reported his results with hypoglycemic therapy. It is not necessary to dwell on the technic of this therapy. The enthusiasm which it probably rightly deserved served as a stimulus for another epic of concerted effort in an attempt to solve the riddle of achieving an improved therapy for patients who are mentally ill. That hypoglycemic therapy was productive of certain worth-while results cannot be denied. The underlying physiologic effects upon the mental status of the patient remains, however, a debatable question. Chemical studies carried out on patients who received this type of therapy gave no definite clue as to a possible chemical basis on which good results might be predicated. The rationale of hypoglycemic therapy was by no means clear. Could the favorable results be explained on a chemical basis? Fortunately, psychiatrists realized their limitations and turned to the chemist for help. Graciously chemists gave of their time and skill and soon there appeared treatises on the chemical studies of schizophrenia, and manic-depressive psychosis. Although no favorable conclusions could be drawn from these intensive laboratory studies, they served to inspire the chemist and aroused much needed interest in the chemistry of the nervous system which had been more or less neglected.

That hypoglycemic therapy is not without risk was demonstrated both in animal experimentation and in postmortem studies of patients who died during the treatment. As it appeared that convulsions contributed to the beneficial effect of shock therapy, search was made for other convulsant drugs. It was at this time that Meduna introduced the use of metrazol in convulsive therapy. The results and the ease of administration in metrazol therapy compared so favorably with the results of insulin shock therapy with its complicated technic that metrazol soon became the drug of choice. The method of metrazol convulsive therapy is relatively simple and need not be elaborated at this time. Various theories as to the mode of action of the drug have been proposed but none of these have been entirely satisfactory. Some investigators have gone so far as to consider metrazol therapy as a specific means of discharging the tension which may be confined within the diencephalon in cases of melancholia. Metrazol has not been the only drug that has been used in convulsive therapy as triazol, sodium chloride, camphor, picrotoxin, electric shock and other agents also have been employed to produce convulsions.

In spite of some excellent results obtained with metrazol convulsive therapy, especially in cases of depression, the occasional occurrence of dislocations or of fractures dampened the enthusiasm for this type of therapy. To overcome the severity of the convulsions and to protect the patient from possible dislocations or fractures, various safeguards were instituted. Spinal anesthesia was tried for a time but its use has been discontinued. Bennett and other investigators have administered curare intravenously to produce muscle relaxation. Erythroidine is being used at the present time by various investigators. These agents, while helpful in preventing complications during metrazol convulsions, are not without danger and do not overcome the patient's dread of the treatment.

During the years under consideration, therapeutic attempts were not confined entirely to shock therapy. Certain investigators were not only unwilling to accept the rationale of such therapy but were approaching the problem from different angles. Time will not permit a consideration of all the various phases of therapeutic trial which have included the inhalation of nitrogen and of carbon dioxide in the hope of producing a change in the oxygen content of the brain. That anoxemia plays a role in convulsive therapy is a common expression, but just how it affects mental patterns is not known. Among other therapeutic measures one must mention the use of transfusions of whole blood, the use of hematoporphyrin, the employment of various forms of fever therapy and the use of benzedrine, histamine and similar drugs. The physiologic chemist had not been idle and he added to our knowledge of the metabolism of potassium, sodium, and chlorides.

Naturally no subject that is related to the functions of the central nervous system would be complete without reference to the endocrine glands and to vitamin therapy. Hormone or glandular therapy has run the gamut of use and abuse. Certain it is that the endocrine glands play a role in the normal function of the body but just what influence they have in the psychoses or the psychoneuroses is not too clear. Gonadotropic substances have been employed with varying results. The claims that have been made for theelin in the treatment of menopausal depression have not been clearly established. It does appear, however, that at times the use of theelin or similar substances in the treatment of depression occurring during the menopause does produce some benefit. At the present time, the use of testicular hormone is recommended in the treatment of depression occurring in the male climacteric.

During the past few years, the use of vitamins has become more or less fashionable and they do have a place in the treatment of certain mental states associated wih vitamin deficiency. As yet we have no clear conception as to the variability of the mental symptoms resulting from vitamin deficiency, and the diagnosis of these mental states is no easy task.

ELECTRIC SHOCK THERAPY

Two of the more recent steps in the progress of the treatment of mental disease are electric shock therapy and the surgical approach to the problem. In 1938, Cerletti and Bini announced their method of electric convulsive therapy in cases of schizophrenia. The technic is that of passing an ordinary (alternating) current through the posterior part of the frontal lobes (area 6). Baldes, of The Mayo Clinic, has aided in the construction of an electric apparatus in which the current can be accurately controlled so that the patient may receive the amount of current that is specified. From 300 to 600 milliamperes are passed through the frontal lobes for a tenth of a second. The threshold for convulsions is somewhat variable, but rarely is less than 300 milliamperes. The convulsions are considerably milder than those produced by metrazol. To the amazement of investigators, the patient receiving electric shock therapy does not suffer from pain. The patients will return repeatedly for the treatment without any apprehension which is a common feature when metrazol is used. With the electric shock there is an amnesia for the period of treatment and the amnesia may last an hour or more. It is conceivable that a subconvulsive dose may prove to be as satisfactory from a therapeutic standpoint as a convulsive dose. The severity of the convulsive attack can be rather well controlled by the amount of electricity that is passed through the brain. Animal experimentation has demonstrated that twenty to thirty times the convulsive dose may be passed through the frontal lobes without producing ill effects. At The Mayo Clinic we have been using this form of therapy since the first of September. As yet we are unable to report upon the therapeutic results but it is our impression that electric shock therapy will replace metrazol convulsive therapy.

SURGICAL THERAPY

That a surgical approach to the treatment of mental disease might possibly be developed was a thought entertained for many years by Dr. W. J. Mayo. To quote him: "If necessary we shall perform exploratory operations on the head at an early stage of disease and turn the light of day onto many of the pathologic conditions of the brain." It was not until 1936 that any serious surgical attack upon the problem of mental disease was instituted. In that year Monez introduced the operation of prefrontal lobotomy for the surgical treatment of certain mental states. The success reported by Monez prompted Watts and Freeman to adopt this surgical procedure and they, too, reported gratifying results, especially in cases of agitated or anxiety states. Since January, 1940, J. G. Love, of The Mayo Clinic, has performed this operation in seven cases. He obtained excellent results in two cases, and fair results in two cases. In two cases the patients were not improved and in one case the patient was operated on recently and a final report is not possible.

The purpose of the operation is to divide the subcortical association fibers in the frontal lobes and thereby remove the inhibitory function of the anterior poles of the cerebral hemispheres. By destroying the association pathways in the frontal lobes the patient's agitation, apprehension and state of tension are supposedly relieved. As is the case in electric shock therapy, it is probably too early to express any definite opinion regarding the results obtained with surgical treatment of mental disease.

CONCLUSIONS

I wish to emphasize that my real purpose in reviewing the progress that has been made in the treatment of mental disease is not to justify any one form of therapy but to call attention to the tremendous interest in the effort to relieve human suffering. It is indeed possible that many of the present forms of therapy will give way to more successful methods, and at a future time we may look back with shame when we recall some of the harsh methods of therapy that are in use today. It is probably true that never before has there existed such a hopeful attitude toward the problem of mental disease. The enthusiastic efforts of the many working in various fields of science should in some small way be rewarded. Certain it is that the future of psychiatry never looked more hopeful than it does at the present time.

I trust that in this humble manner of tracing for you the progress that is being made in the treatment of mental disease I have in a measure fulfilled my obligation of keeping alive the gospel of humanism and progress, which were so much a part of Dr. Chaillé.

BIBLIOGRAPHY

1. Bennett, A. E.: Preventing traumatic complications in convulsive shock by curare, J. A. M. A., 114:322, 1940.

2. Cerletti, U., and Bini, L.: Quoted by Kalinowsky, Lothar: Electric-convulsion therapy in schizophrenia, Lancet, 2:1232, 1939.

3. Freeman, Walter, and Watts, J. W.: Prefrontal lobotomy in the treatment of mental disorders, South. M. J., 30:23, 1937.

4. Mayo, W. J.: Remarks given before the Surgical Section of the Association of American Railroads at the annual meeting in Atlantic City, New Jersey, June 11, 1935.

5. von Meduna, L.: Die Konvulsiontherapie der Schizophrenie, Psychiat.-neurol. Wchnschr., 37:317, 1935.

6. Monez, E.: Tentative operationes dans le traitement de certaines psychoses, Masson, Paris, 1936.

7. Sakel, M.: Schizophreniebehandlung mittels Insulin-Hypoglykämie sowie hypoglykämischer Schocks, Wien. med. Wchnschr., 84:1211, 1934.

8. Wagner von Jauregg, J.: Über die Einwirkung der Malaria auf die progressive Paralyse, Psychiat.-neurol. Wchnschr., 20:132, 1918-1919.

POLYRADICULONEURITIS

THE GUILLAIN-BARRÉ SYNDROME
A CASE REPORT*

GILBERT C. ANDERSON, M. D.†
NEW ORLEANS

The purpose of this case report is to direct attention to a condition which is relatively rare and which, depending upon one's familiarity with the syndrome, may be easily recognized or very puzzling.

Polyradiculoneuritis, which is also known as the Guillain-Barré syndrome, was first designated by this name by Guillain,[1] in 1936. He claimed that he had described the condition, with Barré and Stohl, as a definite clinical entity in 1916, but the same or some similar syndrome had previously been reported under a number of other names.[2,3] Thus Osler[4] in 1892 described "acute afebrile polyneuritis." Patrick,[5] in 1916, reported 29 cases of polyneuritis in which facial diplegia was a feature, and observed that the toxic agent was peculiarly noxious to the seventh nerve. He pointed out that this type of paralysis is nearly always bilateral and very intense, and that the face recovers from it more slowly than the extremities.

A fair index of the incidence of polyradiculoneuritis may be gathered from the report of 35 cases observed in The Mayo Clinic from 1918 to 1936.[2] It is possible that the disease is more frequent in Europe, or even mildly epidemic there, as one author[6] reported 55 cases over a three year period.

Cobb and Coggeshall,[3] in an excellent short review of the whole subject of neuritis, have pointed out that more detailed study and more accurate classification of

---

*Read before the Orleans Parish Medical Society, June 10, 1940.

†From the Department of Surgery of the School of Medicine of Louisiana State University.

the disease is needed. The case of "acute infective neuritis" reported by them is typical of the case reported in this communication. Gilpin and his associates[2] have also voiced objections to the present classification of the disease and the confusion of its nomenclature.

Guillain[1] described polyradiculoneuritis as "a syndrome characterized by motor disturbances, loss of tendon jerks, with preservation of cutaneous reflexes, paresthesias with slight disturbances of objective sensibility, tenderness on pressure of the muscles, little change in the electrical reactions of the nerves or muscles, and *noteworthy hyperalbuminosis of the cerebrospinal fluid in the absence of cytologic reaction (albumino-cytologic dissociation).*" He believed the condition to be toxic in origin and regarded it as possibly a virus disease. The albumino-cytologic dissociation is an important diagnostic finding and, according to McIntyre,[7] definitely differentiates the disease from other forms of neuritis.

PATHOLOGY

The pathology is degenerative in type. Bradford, Bashford and Wilson[8] have described degeneration of anterior and posterior horn cells, and of spinal ganglion and motor cells of the brain stem and cortex; round cell infiltration about the anterior horn cells without perivascular infiltration; and proliferation of ependyma of the central canal. These authors were able to reproduce the disease in monkeys.

Viets[9] reported a case in which the cortex was normal. The seventh nerve nucleus showed swelling and dilatation of a few cells, chromatolysis with displacement of the nucleolus, swelling of the anterior horn cells, loss of Nissl granules, displacement of the nucleolus, and engorgement of the vessels throughout the cord. There was no perivascular infiltration and the meninges were normal. Wallerian degeneration was present in the nerves; it was irregular in distribution but not massive. There was occasional neuritis, with inflammatory exudate, round cells and hemorrhage, but the findings were not uniform. McIntyre reported practically the same findings.

SYMPTOMS

The onset is usually sudden. The patient complains of tingling and weakness of the extremities, the lower extremities usually being affected first. On questioning, the physician can nearly always elicit a history of some sort of acute infection in the not far distant past, frequently of an upper respiratory infection which has disappeared. The paresthesia may remain of a trifling nature. Pain is occasionally severe, but is usually absent. The sensory phenomena, in short, are not marked, but the motor disability may progress rapidly, as the weakness goes on to a paralysis of the flaccid type and involves the upper extremities and the face. The cranial nerves, except for the seventh, are generally spared, but choked discs may be present. The muscles are tender and may show fibrillation after light percussion.[10] Sphincter control remains intact. The course is afebrile.

LABORATORY TESTS

All laboratory tests may prove normal except electrical examination, which will elicit degenerative reactions in varying degrees. The spinal fluid picture is typical. In Gilpin, Moersch and Kernohan's[2] cases, for instance, the proteins ranged from 100 to 800 mg. per 100 c.c. of fluid; the cells were lymphocytes and the counts were low. McIntyre[7] found albumino-cytologic dissociation in all his cases.

TREATMENT

Although vitamin therapy may be useful, the treatment is chiefly symptomatic and is predicated on the nature and course of the individual case. Some illnesses may be short and mild, others long and severe, and some may be fatal. McIntyre recognizes four classifications: (1) Rapid onset, rapid recovery, possibly seventh nerve involvement; (2) steady progress, death; (3) prolonged course, incomplete recovery; (4) prolonged course, death.

CASE REPORT

J. W. R., a 36 year old white male, an electrician by occupation, was first seen March 23, 1939. At this time he complained of weakness and numbness of the legs of four weeks' duration. When his symptoms began he had felt as if he had a cold and his head had been stopped up. The weakness in the legs was associated with severe pain in the back and generalized weakness. He had continued work for a few days after the illness began, but was obliged to stop because of increasing weakness in the legs which made him almost unable to walk. Some days later his feet and legs felt numb to the level of the knees; he described the sensation as "his feet and legs being asleep."

He was put to bed by his physician, who instituted physiotherapy. At first he could not feel the massage, and could not distinguish between hot and cold water. He became so weak that he could barely get out of bed to go to the bathroom, but was never completely paralyzed. After about two weeks some improvement was noted. Sensory improvement outstripped motor.

The patient had no cranial nerve or sphincteric disturbances. He denied any history of syphilis. He had not been exposed to gas or heavy metal. He drank city water.

NEUROLOGIC EXAMINATION

The musculature of the upper extremities was weak. The weakness was obvious to the examiner, but the patient had not been aware of it until it was demonstrated to him. The legs were extremely weak. The patient could scarcely walk without help, and at the best could take just a few steps. He could not raise his feet clear of the floor and moved with a sliding, shuffling gait. He could not raise his weight on his toes or his heels. He could not stand on either leg alone. He could not walk heel to toe, and he could not hop. When he lay flat he could raise his leg only about 12 inches. His speed was reduced in proportion to his strength.

Occasional weakness and uncertainty were evident when the patient spoke, and probably indicated bulbar involvement. Vertigo was experienced on sudden changes of position. The cranial nerves were otherwise normal.

Sensory examination showed no anesthesia but a marked reduction to all modalities, both deep and superficial, in the feet and legs, gradually fading off about the knees, although there was no definite level. The same condition was evident, but to a lesser extent, in the upper extremities. The patient had not realized this condition, just as he had not realized that motor weakness was present in this area.

The knee jerks were absent. Other tendon reflexes were present but sluggish. No abnormal reflexes or clonus could be elicited, but, strangely in view of his flaccidity, the patient was able to set off a spontaneous sustained clonus if he could get his foot into a certain position. The examiner was never able to reproduce the clonus.

Superficial reflexes were present, active and equal. There was extreme incoordination and ataxia of both gait and station. The remainder of the examination was negative.

Urinalysis showed the urine to be straw-colored and acid in reaction. The specific gravity was 1.009. Albumin, sugar, indican, acetone and diacetic acid were all absent, and the smear showed only amorphous sediment. Sixty per cent of the phenolsulphonephthalein administered was excreted during the first hour and 5 per cent in the second, making a total of 65 per cent for the two hours. Examination of the blood showed 4,450,000 red blood cells and 6,500 white blood cells per cu. mm. Ten per cent of the leukocytes were small and 5 per cent large lymphocytes, 58 per cent neutrophils, and 1 per cent eosinophils. The hemoglobin was 90 per cent and the color index 1.0. No malaria plasmodia were found. The coagulation time was two minutes, 20 seconds. The Wassermann, Kahn and Klein tests were all negative. Chemical studies showed the nonprotein nitrogen of the blood to be 34.2 mg. per cent, urea nitrogen 17.1 mg. per cent, uric acid 3.5 mg. per cent, creatinine 1.5 mg. per cent, and dextrose 86 mg. per cent. The spinal fluid was clear and under pressure of 120 mm. water. The cell count was 2-3. The Wassermann reaction and colloidal gold curve were negative. The total protein was 92.6 mg. per cent.

DISCUSSION

The findings in this case justified the diagnosis of polyradiculoneuritis. The patient was put on a general supportive regimen, including a high intake of vitamins, and was discharged with a fair prognosis. His physician reported his progress as steady, and said that he was practically well when at the end of six months he moved to another locality and could no longer be followed up.

SUMMARY

A typical case of polyradiculoneuritis has been reported. The disease is distinctly unusual in America, but diagnosis is possible if the syndrome be borne in mind.

REFERENCES

1. Guillain, G.: Radiculoneuritis with acellular hyperalbuminosis of cerebrospinal fluid, Arch. Neurol. & Psychiat., 36:975, 1936.

2. Gilpin, S. F., Moersch, F. P., and Kernohan, J. W.: Polyneuritis; clinical and pathological study of specific group of cases frequently referred to as instances of neuronitis, Arch. Neurol. & Psychiat., 35:937, 1936.

3. Cobb, S., and Coggeshall, H. C.: Neuritis, J.A.M.A., 103:1608, 1934.

4. Osler, William: Modern Medicine, Its Theory and Practice, Lea & Febiger, Philadelphia, 1910.

5. Patrick, H. T.: Facial diplegia in multiple neuritis, J. Nerv. & Ment. Dis., 44:322, 1916.

6. Margulis, M. S.: Pathologic anatomy, etiology and pathogenesis of acute primary infectious polyneuritis, Arch. f. Psychiat., 96:95, 1932.
7. McIntyre, H. D.: Infective neuronitis, Ohio State M.J., 33:875, 1937.
8. Bradford, J. R., Bashford, E. F., and Wilson, J. A.: Acute infective polyneuritis, Quart. J. Med., 12:88, 1918.
9. Viets, H. R.: Acute polyneuritis with facial diplegia, Arch. Neurol. & Psychiat., 17:794, 1927.
10. Abadie, Bergouignan, and Verger: Polynévrite pseudo-myopathique, J. Méd. de Bordeaux, 113:787, 1936.

ADDITIONAL BIBLIOGRAPHY

Madigan, P. S., and Marietta, S. U.: Polyradiculoneuritis, with report of a case, Ann. Int. Med., 12:719, 1938.
Strauss, I., and Rabiner, A. M.: Myeloradiculitis; A clinical syndrome with report of seven cases, Arch. Neurol. & Psychiat., 23:240, 1930.
Taylor, E. W., and McDonald, C. A.: Syndrome of polyneuritis with facial diplegia, Arch. Neurol. & Psychiat., 27:79, 1932.

FATAL PARALYSIS FOLLOWING ANTIRABIC TREATMENT

PAUL H. HERRON, M. D.
OAK RIDGE, LA.

INTRODUCTION

The antirabic treatment in practically all cases is neither accompanied nor followed by complications of any importance. There is usually found only a slight degree of local or constitutional reaction; occasionally there is a marked urticaria. These are the only discomforts likely to be encountered. There is, however, a rare complication, the so-called "treatment paralysis" which has been noted since three years after Pasteur instituted his method of vaccination, the cause and nature of which is still not fully understood. The question often arises, after a large group of people are exposed to the bite of a rabid animal, whether or not all of these persons should receive the antirabic treatment. Those actually presenting wounds should have them cauterized with fuming nitric acid and should then be given the fourteen daily antirabic inoculations.

The rabies virus is contained in the saliva of the rabid animal, reaching the salivary glands by way of the nerves. The disease may be transmitted when the injected saliva comes in contact with a break in the skin or mucous membrane. This usually occurs in man from the teeth or claws of the infecting animal. The infected saliva needs only to get on a break in the skin or mucous membrane. It is not necessary that the virus penetrate the deeper layers of the skin. Therefore in those in whom infection is doubtful or who wish to be treated merely as a matter of precaution, one should weigh carefully the advisability of giving the inoculations, bearing in mind the incidence of treatment paralysis.

INCIDENCE

According to McKendrick,[1] out of a total of 115,859 persons treated (mostly in 1932) there were 22 paralytic accidents or one in 5,266, with five deaths out of the 22. The figures relating to accidents covering other analytic reviews by McKendrick show a total of 126 paralytic accidents in 635,142 persons treated; (0.02 per cent) or one in 5040 with 37 deaths in the 126 accidents. It appears that the liability to accident after treatment by live vaccines is four times as great as after treatment by killed vaccines, and eleven times as great as after treatment by heated vaccines.

ETIOLOGY

The etiology is still not definitely known. It is thought that alcohol, syphilis, neurasthenia, hysteria and other conditions which lessen the resistance of the nervous system, are predisposing factors. Since paralytic accidents occur so rarely an individual idiosyncrasy on the part of the patient must be assumed. It is found more frequently in males, and in individuals of the professional type rather than of the laboring type. Overexertion during the course of the injections plays an important part in bringing on the neurologic symptoms. It does not occur in children. Individuals bitten by rabid animals are no more prone to the affection than those bitten by non-rabid animals.

The theories as to the cause include:

1. Anaphylaxis, due to the repeated injections of foreign protein as contained in the rabbit cord employed, is thought to be the cause by Harvey and McKendrick.[2] Against this theory is the fact that paralyses have not been produced in animals by the injection of large amounts of normal nerve tissue and also, even should nerve

tissue produce anaphylactic symptoms, paralytic symptoms are not anaphylactic phenomena, say Stuart and Krikorian.[3]

2. The specific action of a "rabies toxin" which is in combination with the fixed virus used in treatment is the theory of Remlinger[4] and Babes.[5] This theory has not been confirmed.

3. Street virus infection, received from the biting animal and so modified by treatment that the disease runs an atypical course, is held by Koch.[6] Against this theory is the fact that in a number of cases the biting animal was not mad; in others the patients were not bitten, but had taken the antirabic shots merely as a precaution. The incubation period is usually too short for street virus infection.

4. Fixed virus infection due to the treatment is responsible, says Kozewalow[7] and Fielder.[8] The latter adds that a toxin might be an additional factor, but there are more arguments against than for this theory.

5. According to Stuart and Krikorian[3] the cause is to be found in some constituent of the protective inoculations themselves unavoidably introduced. This paralysis producing substance present in both normal and rabid nerve tissue can definitely be made innocuous to rabbits and rats by appropriate treatment with 1 per cent phenol. This fact has brought about a modification of the Pasteur treatment with a lessening of paralytic accidents. Finally, the vital importance of an individual idiosyncrasy must be recognized. Such susceptibility governs the actual occurrence of accident; otherwise, the cases would be enormously more frequent than they are.

TYPES OF ACCIDENTS

The clinical form of paralytic accidents encountered following antirabic treatment presents great diversity. There is no uniform classification but in general four types are recognized: (1) The ascending paralysis of Landry, (30 to 40 per cent); (2) the dorsolumbar myelitis (5 per cent); (3) the neuritic or isolated peripheral nerve paralyses (20 per cent); (4) the mixed myelitic and neuritic forms.

SYMPTOMS AND COURSE

Important differences are found in the initial period and in the period of invasion in each form. The development of the paralysis has no bearing on the length of time since the patient was bitten. In 25 per cent of the patients, according to Tumskaya,[9] the lesion develops during the first ten days after treatment is started; in 62 per cent of the patients it appears during the third week and 13 per cent of the patients later. It appears most frequently 14 to 15 days after the first inoculation. The incubation period of antirabic paralysis is therefore shorter than that of rabies.

The onset of symptoms in the dorsolumbar myelitis and Landry types is usually acute, and in the neuritic chronic. The clinical features differ moderately from true rabies. There is usually no fear of water and no spasm of the glottis. According to Volters,[10] in the myelitic types the interval between the first general symptoms and the onset of the paralysis is usually acute, lasting often only 24 hours. In the polyneuritic types the onset is preceded by a much longer period, during which the patient has vague pains, malaise, some degree of paresthesia and a slight weakness in the legs, which becomes slowly more intense. Fever is usually absent in this type and if it does appear is slight, and does not last the entire course of the infection, whereas fever may be persistent and very high and associated with chills in the myelitic forms. Paralysis in the myelitic forms may be complete in a few hours and is never delayed longer than three to four days, whereas in the polyneuritic form the paralysis appears slowly and corresponds to the increase in weakness of the lower extremities. Where sensory disturbances accompany the paraplegia they are located in the medullary part in the myelitic form, while in the polyneuritic they are of the peripheral type. When paralysis of the cranial nerves appears at the same time with the paralysis of the limbs, it is a case of polyneuritis. The myelitic form will produce grave dystrophic phenomena, prostration and sphincter disturbances. A sure sign of polyneuritis is that the pains may not be spontaneous but may be provoked. The patient may complain of only a slight degree of neuritis with little or no motor involvement. In general the symptoms are as follows: At the termination of the treatment, or frequently just before, there suddenly appears the prodromal symptoms of malaise, vague pains, and anorexia. These last 24 hours when further signs of the affection such as headaches, dizziness, nausea, vomiting, occasionally hives, fever, pain in the back and extremities appear. The condition progresses rapidly, the headaches and vomiting often becoming severe. As the cerebral symptoms increase the consciousness is affected and stupor may ensue. Individual cerebrospinal nerves may become involved. The pupils often fail to react to light. Bulbar symptoms frequently appear in the form of disturbances of swallowing, rapid pulse, or disturbed breathing. Parallel with these cerebral symptoms come the signs of a severe spinal cord affection. The patient complains of weakness of the extremities and the sphincters are involved. The patient is unable to void or less frequently there is an incontinence. Objectively there can be demonstrated a decrease in the muscular power, loss of muscle tonus, absence of tendon and superficial reflexes. Pathologic reflexes may be demonstrated. A distended bladder is often palpable.

Spinal puncture reveals an increased pressure, an increase in albumin, an increase in cell count usually from 50 to 200 or more with a predominance of mononuclears, and a sterile culture. The blood count usually shows only a polymorphonuclear leukocytosis. Urinary findings are often albuminuria and occasionally glycosuria, but more frequently are normal.

PATHOLOGY

When the meninges are involved, there is usually an edema and hyperemia present. The pia mater has a cloudy appearance and sometimes a serous or serofibrinous exudate will form. The entire picture resembles that of an acute infiltrative myelitis or that of a hemorrhagic myelitis. Those parts of the cord affected show softening. A distribution of lesions through both the white and gray matter often renders differentiation between the two nearly impossible, the whole cord surface presenting a hemogeneous grayish pink appearance. Often the large ganglion cells of the gray matter of the cord partly disappear. Trophic disturbance is the cause of the softening. Extended lesions of the gray matter as it occurs in poliomyelitis or in polio-encephalomyelitis with disseminated foci are similar to those encountered in the ascending Landry type.

The greatest alterations are usually noted in the dorsolumbar medulla from which they extend and appear somewhat modified in higher regions. The medulla appears swollen and softened and the line between the gray and white substance is indistinct and sometimes one may note rosy zones or hemorrhagic dots in several places. It often seems to be noted that the white substance is more involved than the gray.

Sometimes the alterations of the medulla are limited to hyperemia and edema. In other cases there may be also inflammatory infiltrations around the vessels and nerve cells accompanied by hemorrhage. In more severe cases there may be a destruction of the nerve substance, which may appear in the form of edematous swelling of the fibers of the white substance. Similar alterations may be encountered in the encephalon but usually the destruction will be less extensive. Negri bodies or Lentz bodies are never found present.

TREATMENT

There is no specific treatment known and therefore symptomatic treatment has to be employed. Decubitus ulcers and cystitis are the most dangerous factors. Special care should be observed in their prevention. If the patient has been bitten by a known rabid dog the inoculations should probably be continued, since in numerous reported cases they have been persisted in without apparent detriment. They may be discontinued if the biting animal was probably not rabid. It is advisable in these cases to consult the pathologist.

PROGNOSIS

In regard to prognosis, the patients may be divided roughly into three groups. The mild ones with transitory paralyses of face or limbs all recover. The acute paraplegias of the lower extremities with or without involvement of the sphincters have a mortality rate of about 5 per cent. Death, if it occurs, is likely to be due to cystitis or bedsores after a long illness. The severest cases of the ascending Landry paralysis type have a bad prognosis for from 40 per cent to 50 per cent do not recover. Death is due to respiratory or cardiac paralysis or later from inhalation pneumonia, cystitis or bedsores. The earlier the appearance of the paralytic accident the more severe the symptoms.

CASE HISTORY

R. C., a white male, aged 18, a university student, entered the clinic on December 2, 1939, because of a severe headache and fever which began November 13, 1939. He also complained of weakness in the lower limbs and was unable to walk. He was unable to void. Two weeks prior, a dog at the university had contracted rabies and the patient was one among fifty who took the antirabic inoculations. He did not think he had been bitten by the dog, but had abrasions on both bands and had played with the animal. He took the treatment at the insistence of his family.

His first inoculation was given November 20, 1939, and he received one inoculation a day for twelve days. He was unable to come to the office for his eleventh treatment because of severe vomiting and pain in his abdomen which he had attributed to the eating of some shrimp. He requested that the treatment be given at his home, which was done. The following day, he was no better. His symptoms had increased in severity and an inoculation was again given to him at home. He had been able to be up and there was no evidence of paralysis other than an inability to void.

This patient had a peculiar nervous temperament, having lost an eye in an accident several months prior and had a more or less despondent outlook on life. The next day, because of the onset of lower extremity weakness, his thirteenth inoculation was omitted and he entered the hospital.

The following day, he developed definite evidence of paralysis in both legs. The cremasteric and lower abdominal reflexes were absent. His coma gradually increased. An eye examination by Dr. Titche revealed a choking of the left disc of 2-D with the veins engorged. The right eye was artificial. A diagnosis of paralysis of Landry due to antirabic treatment was made. The paralysis of the bladder continued and catheterization had to be employed. He lapsed into unconsciousness off and on most of this day, then began to develop some difficulty in swallowing. A spinal tap revealed an increase in fluid pressure of fifteen millimeters of mercury. The cell count was 145 with a predominance of round cells. On December 4, he lapsed into a coma from which he could not be aroused. The paralysis gradually extended higher and the lungs rapidly became filled with fluid and he died on December 6.

An autopsy was performed with particular reference to the brain, which was removed. The vessels throughout were markedly injected. There was a thin cloudy exudate at the base. A section of the brain was sent for examination to Dr. W. H. Seemann of the Department of Health in New Orleans, and to Dr. Wm. R. Mathews of the Charity Hospital in Shreveport, Louisiana.

Microscopic examination of the brain revealed numerous hemorrhages. The vessels of the brain and meninges were distended with blood and there was an edema of the meninges. The white matter was not affected as much as the gray, the places were barely distinguishable from each other. There were various areas of round cell infiltration in the brain. No Negri bodies could be demonstrated. Except for the absence of Negri bodies, the section of the brain appeared as one might expect to find in rabies, and similar to Perdrau's description of the complete histology.

CONCLUSIONS

1. Paralytic accidents following antirabic treatment are rare (0.02 per cent, or one in approximately every 5,000 cases) and of those affected an average of 25 per cent end fatally.

2. Since the paralytic accidents occur during the course of, or at the end of the antirabic treatment, it is reasonable to assume they are due to the protective inoculations.

3. The etiology is not known, but actual occurrence is governed by an individual idiosyncrasy. Apparently there exists in the basic nerve substance of all antirabic vaccines some deleterious component, which, although adversely affected by several physical and chemical agents, is still capable in certain susceptible individuals of producing the various forms of antirabic paralytic accidents.

4. Antirabic treatment is not entirely devoid of risk, though the possibility of the occurrence of paralysis is so slight that it should not deter those who need antirabic

treatment. A person bitten by a rabid animal is much more likely to develop rabies, which is certainly fatal, than paralysis, which usually ends in recovery.

5. To those who insist on antirabic treatment, in the absence of clinical or laboratory evidence that the biting animal was rabid, the slight risk should be explained.

REFERENCES

1. McKendrick, A. G.: A fifth analytical review of reports from Pasteur Institutes on the results of antirabies treatment, Quart. Bull. Health, 3:613, 1934.
2. Harvey and McKendrick: Theory and Practice of Antirabic Immunization. Scientific Memoirs, Gov't. India, New Series, No. 30. Calcutta, 1907.
3. Stuart, G., Krikorian, K. S.: A fatal neuro-paralytic accident of antirabies treatment, Lancet, 24:1125, 1930.
4. Remlinger: Ann. de l'Instit. Pasteur, 19:625, 1905.
5. Babes and Marinesco: Compt. rend. Soc. de Biol., 64:964, 1908.
6. Koch, Joseph: Ztschr. f. Hyg., 64:258, 1909.
7. Kozewalow, S.: Centralbl. f. Bakteriol. orig., 73:54, 1914.
8. Fielder, Frank S.: Paralysis during Pasteur antirabic treatment, J. A. M. A., 66:1769, 1916.
9. Tumskaya, V. A.: Involvement of the nervous system in antirabic inoculations, Klin. Med. Mosk., 9:410, 1931.
10. Voltera, M.: Clinical study of paralysis following antirabic vaccination, Riv. di Clin. Med., 30:704, 1929.
11. Perdrau, J. R.: Persistence of virus of herpes in rabbits immunized with living virus, J. Path. & Bact., 47:455, 1938.

ESTROGENIC HORMONE THERAPY IN THE TREATMENT OF PRESENILE AND MANIC DEPRESSIVE PSYCHOSIS*

E. M. ROBARDS, M. D.†
JACKSON, LA.

Since time immemorial women have looked forward to that inevitable, many times tragic, climax in their reproductive period known as the change of life, or menopausal syndrome. Irrespective of the many factors stated as contributing or predisposing causes, the menopausal syndrome complex known as involutional melancholia may appear out of a clear sky in its most tragic form. There is the picture of absolute despair and loss of hope, sometimes to the degree that suicide is the only escape. In answer to their pathetic appeals, there has been very little to offer in the way of therapy to relieve their distress. My discussion is not based upon an acute enthusiasm; I do feel that after many years of patient endurance, by both the patient and the physician, there is at last a definite approach in the way of a rational therapy in the treatment of these unfortunate individuals.

Observations of Dreyfus clearly indicate the relationship between involutional melancholia and manic depressive psychosis is very close. The facts revealed by the investigation are: The majority of cases which had not terminated in death resulted in complete recovery. In a small percentage of cases, deterioration ultimately occurred on a basis of cerebro-arteriosclerosis which some patients seem prone to develop.

Kraeplin, in a preface to the work of Dreyfus, accepts this theory, expressed in the following words: "The results show that for the main bulk of cases which we have designated as involutional melancholia that there is no longer any basis compelling their separation from manic depressive psychosis. It would seem that the autonomy of involutional melancholia as a separate clinical entity is destroyed."

ETIOLOGY OF MANIC DEPRESSIVE PSYCHOSIS

The causes of manic depressive psychosis are not fully known. The essential feature in the etiology is a constitutional predisposition which is believed to be inherited. The depression may exist with or without biologic disturbances, but the symptoms are usually accentuated with the approach of the menopausal syndrome.

It is an accepted fact that not all the anxious depressions occurring during the menopausal syndrome belong to the involutional group. Perhaps one-third of these present an admixture of schizophrenic, psychotic, and psychoneurotic symptoms. During the prodromal period the line of demarcation is so ill-defined that a differential diagnosis is extremely difficult.

Inasmuch as this paper is devoted principally to presenile depressions, I feel that involutional melancholia should be briefly discussed. We realize that as long as the normal activity of the ovaries and their relation to the reproductive system is maintained the menstrual cycle continues. With the gradual decline in ovarian function, the gonads atrophy and their internal secretory function is sacrificed; the pituitary then increases its secretion of follicle stimulating hormone, causing an endocrine imbalance which is apparently responsible for the menopausal symptom complex. The adrenals are over-stimulated by the adrenotropic factor and the thyroid by the thyrotropic factor. This lack of harmony causes the hormone imbalance with the resulting effect on the autonomic nervous system.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the East Louisiana State Hospital, Jackson.

Hannon, in 1927, was the first to demonstrate that patients at the menopause are very sensitive to epinephrine and that flushes can be provoked by the injection of small doses subcutaneously. In fact, periodic increased production of epinephrine seems to explain many of the neurocirculatory symptoms of the syndrome. There is a difference of opinion among many competent observers as to the value of estrogenic hormone therapy. Sevringhaus, Papanicolou and Shorr-Hawkinson, Werner and Suckle feel that it is of value in the treatment of mild depressions occurring during the menopausal syndrome, Werner being the most enthusiastic of this group. There are others who question its value.

In establishing a diagnosis a very careful prepsychotic history should be obtained. The possibility of a late developing schizophrenia with a prodromal depression is to be considered; a study of the eye grounds to eliminate cerebro-arteriosclerotic psychosis; and, the possibility of psychoneurosis—any of these conditions may occur during this period and none respond to estrogenic hormone therapy, though all present a syndrome similar to that noted in involutional melancholia.

A group of 51 patients, presenting symptoms from simple depression to the agitated type when there was the picture of despair—patient wringing hands, giving vent to cries and lamentations, several having hallucinations, varieties of delusions, ideas of culpability, ruin, suicidal tendencies, were observed. These patients were given 10,000 units of theelin in oil weekly and progress notes made each week by the nurse who gave the treatment. She was not informed as to the diagnosis of any of the cases in this group. Each patient received from 60,000 to 175,000 units. After treatment in this group had been completed, it was rather interesting to note that those cases not benefited by the therapy were diagnosed as follows: Dementia precox, six; psychosis with cerebral arteriosclerosis, 12; psychoneurosis, two.

The remaining 31 cases were diagnosed as involutional melancholia and manic depressive psychosis. Results in these cases are as follows: Excellent improvement, 21; improvement, eight; no change in mental condition, two. Eleven patients have been discharged from the hospital and are making a satisfactory home adjustment. A stabilizing dose, following initial treatment appropriate to each individual case, is recommended.

The histories of two patients are presented for illustration.

CASE NO. 1

First Admission: This patient was a white female, aged 46, married, who was admitted to the hospital February 1, 1938, with the information that her early life history was within normal limits and she was above the average in intelligence.

Patient stated her married life was made up of periods during which she was happy and other times sad. In 1925, she had a nervous breakdown lasting six months. Her husband died in 1933; following his death, she developed nervous symptoms which grew progressively worse.

On admission she was in a pronounced state of depression, stating she had committed unpardonable sins and could not be forgiven. She had fixed ideas as to conception of Deity, and had not applied in the correct manner the principles of righteousness—for this, she condemned herself. She had many somatic complaints. No hallucinations or delusions were elicited, and her speech was coherent and relevant.

Diagnosis: Manic depressive insanity—depressed phase.

Treatment: Hydrotherapy, and other appropriate therapy instituted. Response to treatment was very slow. A prepsychotic level was not reached until November, 1938. Furloughed from hospital November 23, 1938. Total hospitalization lasted eight months and 22 days.

Second Admission: Readmitted February 10, 1939. On second admission symptoms were very different from those noted at first admission. Her expression was one of happiness and animation. The face was flushed. Lucidity perfect and orientation correct. She presented the flight of ideas in its most typical form. Her judgment was materially affected. There was marked euphoria. Reactions were very impulsive; decided motor acceleration.

Diagnosis: Manic depressive insanity—manic phase.

Treatment: Theelin in oil, 10,000 units per week, for eight weeks. There was marked improvement following 40,000 units. The patient rapidly cleared and at the end of the sixth week had reached a normal prepsychotic level. She was discharged from the hospital on September 8, 1939, and is now making a satisfactory home adjustment with appropriate stabilizing doses of theelin.

CASE NO. 2

A white female, aged 51, married, was admitted to the hospital March 5, 1939, with the information that her early life history was within normal limits and she was of average intelligence.

Patient gave a history that about three years ago she had a nervous spell and became very depressed. There were no hallucinations or delusional ideas at that time. The episode lasted four or five weeks, and the attack was terminated abruptly. There were no residuals and she maintained a normal prepsychotic level until February 1939. At this time she began to worry over minor business affairs, pyramided her troubles until she lost control of her emotions, became extremely depressed and began to hear voices. She was brought to the hospital in this condition.

On admission her speech was coherent, she was correctly oriented and memory and retention were good. She continued to be in a marked state of depression which lasted six weeks.

Diagnosis: Manic depressive insanity—depressed phase.

Treatment: Patient was immediately placed upon theelin in oil, 10,000 units weekly. In about eight weeks improvement was noted and rapidly continued. The depression had completely cleared, she realized the absurdity of her hallucinatory experiences and had insight into the episode which she had experienced.

On May 28, 1939, she was discharged from the hospital and had reached a normal prepsychotic level. The period of hospitalization was two months and 23 days. I have kept in touch with this patient, she has made an excellent home adjustment and has not required any therapy since being discharged.

SUMMARY AND CONCLUSION

1. A correct diagnosis as near as possible before administering any definite form of therapy.

2. It is principally indicated in all forms of manic depressive and presenile states where the exciting cause is of biologic origin.

3. Give in sufficiently large doses, but be guided in both early and stabilizing doses by the requirements of each individual case. If favorable results are not obtained by 175,000 units, discontinue its use. With large doses over long periods, theelin tends to produce sclerosis of the ovaries (Kunde-Leonard). Moore says that its excess results in injury to the gonads, because it diminishes the gonad-stimulating hormone of the anterior pituitary. It is therefore not a harmless therapeutic agent.

4. Patients who present the involutional syndrome and do not respond to treatment will most probably fall subsequently into another classification. The therapeutic test may be of value in borderline cases.

5. Observation here indicates that there is improvement in many patients to such extent that they are able to return home and maintain (with treatment) a normal domestic level. The period of hospitalization is materially reduced. Those requiring hospitalization are able to make a more satisfactory adjustment.

6. It is generally accepted that estrogenic hormone therapy benefits the nonpsychotic patient who has mild neurocirculatory symptoms resulting from biologic disturbances. Many of these persons are emotionally unstable and are potential candidates for manic depressive states. The history obtained from the majority of the manic depressive cases is that the episodes following each remission become more pronounced as the menopause is approached. The close relation existing in these states is definitely established to the degree that the autonomy of involutional melancholia as an entity is destroyed. Why then, could we with any degree of fairness to ourselves and our patients administer that which we consider a rational therapy to a patient pre-

senting the prodromal symptoms and ignore its use when the storm resulting from the preliminary preparation arrives.

BIBLIOGRAPHY

1. Sevringhaus, E. L.: Relief of menopause symptoms by estrogenic preparations, J. A. M. A., 104:624, 1935.
2. Suckle, J. E.: Treatment of involutional melancholia by estrogen, J. A. M. A., 109:203, 1937.
3. Ault, C. C., Hocter, E. F., and Werner, A. A.: Theelin therapy in the psychoses, J. A. M. A., 109:1786, 1937.
4. Hawkinson, L. F.: The menopausal syndrome—one thousand consecutive patients treated with estrogen, J. A. M. A., 111:390, 1938.
5. Ripley, Herbert, S., Shorr, Ephriam, and Papanicolou, George N.: The effect of treatment of depression in the menopause with estrogenic hormone, Am. J. Psychiat., 96:905, 1940.

DISCUSSION

Dr. C. S. Miller (Jackson): In discussing this excellent paper of Dr. Robards, I shall attempt to emphasize only a few of the points he brought out regarding estrogenic therapy in involutional melancholia. At the time of the menopause there are many conditions that simulate involutional melancholia. There are a lot of depressions induced by presenile changes, arteriosclerosis, psychoneuroses and other conditions, which are not clearly diagnostic. Now the main feature in dealing with these patients is to make a diagnosis. Proper diagnosis has to be arrived at and all other diseases or conditions removed. If we are dealing strictly with involutional melancholia cases, we can expect results from estrogenic therapy. We find that a number of patients show no depressions or no symptoms until the involutional period occurs. However, if we question our patients very closely, we frequently find that they have experienced previously one, two, or more periods of depression. Probably, these were not sufficient to have this individual hospitalized, but at the same time, we should determine if they have previously had some trouble. In the patients who have had the depressions prior to the involutional period, spontaneous recovery is very probable. In persons developing depression during or after the involutional period, there are but a few spontaneous recoveries.

I want to bring out the point that before we used estrogenic therapy at the hospital we had about one-third of involutional cases to return home. Now, the figures are just reversed; we have about one-third remain in the hospital. As Dr. Robards showed in his figures, out of the 31 cases, we had 21 patients who made excellent adjustment; eight of them fair, and two none. These patients, of course, must continue small doses of hormone after they leave the hospital, because we feel that in going into or entering senility, that the disturbances in the hormone balance causes this trouble, and nature has to have a chance to stabilize these individuals in their new life. Therefore, we require all our patients going out to take small doses of theelin after they leave the hospital.

Dr. Robards has covered the subject so well that I do not see that I can add very much more to it, but I did want to make that part of the paper clear and try to emphasize the facts that he has brought out in his statistics.

Dr. J. T. Cappel (Alexandria): As a general practitioner whose patients are principally women, I greatly appreciate Dr. Robards' paper. It is certainly encouraging. He is in a position, in a large institution, to have the opportunity of observing his patients more closely than we can, and to see his treatments carried out. He is also in a position to make an early differential diagnosis of the different forms of insanity that simulate involutional melancholia. But we, as general practitioners, have the advantage of knowing the patients for many years and can detect slight changes in their mental status, and should start treatment a long time before it is necessary for them to have institutional treatment. I do believe we have saved many of our women from going to institutions for treatment by giving standard preparations of estrogenic hormone in large enough doses to stabilize them, so that they can carry on their domestic duties, and we have done no harm in giving these treatments. I do not believe that estrogenic hormone in relatively large doses over a short period would do any serious harm. In fact, it would help make a differential diagnosis. If they do not clear up, we should call in a specialist to find out the cause of the trouble.

Dr. C. S. Holbrook (New Orleans): I want first to congratulate the staff of the East Louisiana State Hospital on the splendid work it is doing. The psychiatrists there have been in recent years employing the various types of therapy brought out that might help the patients who are mentally ill. I think we may no longer have to think of the hospital as an asylum where patients are just sent and where they receive no particular treatment but only custodial care. The institution is doing very splendid work, as exemplified by Dr. Robards' paper.

I am quite in accord with what Dr. Robards has said as to the use of estrogenic hormone therapy in some of these patients. I think it should be somewhat on a trial basis; if it does not help the patient, it should not be continued over a great length of time. Many women patients are anxious to place the responsibility of their inability to get along, the responsibility of their mental disturbances, on the change of life. After they get to 29 or 30 years of age they are willing to blame everything on that. I think a lot of theelin is misused, and valuable time is wasted giving theelin, when proper investigation might show the real cause of the trouble. The menopause is used as an explanation for various troubles entirely too often. I see people who have been told that they have been going through the menopause for ten, fifteen, or twenty years, and are still menstruating regularly, having no particular trouble that way. Somebody has suggested that they should have theelin and they have taken it over a period of time. I think we as medical men should not lend the weight of our judgment and our opinion to that thought. I think we are too ready to accept the menopause as an explanation for a woman's difficulties provided she is over thirty years of age. If she continues to live long enough, she will probably have some evidence of the menopause in ten, fifteen, or twenty years. So, we should be on our guard not to let this type of therapy get too far away from us. If we give large doses for six or eight weeks and the patient is not benefited, then probably we are not using the right therapy.

In involutional melancholia I am sure a number of patients benefit by it. I think one part of the benefit is due to the hormone itself and part of the benefit is due to the fact that the psychiatrist gives the patient something to hang on to. They are treated as sick people, given hypodermic injections, and in that way there is psychotherapy in addition to the actual benefit from the hormones.

Dr. Hugh Newbill (New Orleans): I endorse Dr. Holbrook's statement as to the necessity of adding psychotherapy to estrogenic therapy in the treatment of these patients, for it is difficult for me to conceive that a reduction in or complete absence of estrogen can be the sole cause of mental disease. Psychoses develop in only a very few of the many women in whom an artificial menopause has produced a much more abrupt and more severe loss of this substance than the natural menopause causes. Some additional factor must be responsible for the appearance of mental disease. The loss of estrogen, in my opinion, cannot be more than a precipitating factor. Its action would be similar to that of any other organic lesion, such as a gastric ulcer or a broken leg. Estrogenic therapy alone, therefore, does not offer much hope for the cure of mental disease.

Furthermore, it has been shown that the estrogens are not entirely ovary-specific in their effects. Injections of certain vitamins can reproduce many of the same phenomena.

It is very difficult properly to evaluate a statistical study concerned with psychogenic diseases and their therapy. Patients differ greatly and it is no simple matter, as a result, to obtain a proper group of controls. It would be interesting to study a series of patients treated alternately by estrogenic and vitamin B_1 therapy.

Dr. H. Randolph Unsworth (New Orleans): It is difficult to make a few comments as Dr. Robards asked me to do, as the subject has been so thoroughly gone into.

It has appeared to me clinically that it is difficult to know which melancholic or involutional type of psychosis is benefited by estrogen therapy. It has impressed me, however, that these individuals who appear to be endogenous in their make-up, and therefore, involutional changes are more advanced, respond better. There is some question in a lot of people's minds, that with certain types of the involutional psychotic, estrogenic therapy is definitely detrimental. I, personally, am not in a position to know that differentiation. I do not know that estrogen therapy by itself is any cure for the psychotic and the involutional period.

As Dr. Robards brought out, there are many factors that have to be considered diagnostically in the diagnosis of pure, unadulterated involutional psychosis. First, is the family history. It has been my experience that these people who develop a menopausal syndrome that have a family history of such disturbances offer a worse prognosis than those who do not. Those people who have been perfectly normal all through their lives and reach the involutional period have a better prognosis than those who have had more or less minor disturbances.

Another differential point is the ophthalmoscope. It has appeared to me that the arteriosclerotic group is very difficult from the standpoint of prognosis; they seem to have a bad prognosis, and it seems impossible to say whether the psychosis in the involutional period is purely endogenous, or purely involutional, or whether there are any presenile or arteriosclerotic factors.

Any active therapy is the best type of psychotherapy I know of. I think it is a mistake therapeutically to attempt to cure people by talk and talk alone, to try to correct their errors and try to render straight their lives. It has been my practice, no matter if I think I have a specific medication or not, to give my patients active therapeutic doses. It has been my observation that involutional patients who have gotten well without therapy at all except psychotherapy—so that the subject is wide open and I think it is very difficult to sift down to specific diagnoses or the specific type of therapy.

Dr. E. M. Robards (In closing): I have endeavored to impress the fact that actuated me in presenting this paper; the wish to find a form of therapy that would afford relief in one of the most tragic conditions occurring during the menopausal syndrome. So many women, particularly, those with a cyclothymic personality, are potential candidates for this condition.

I selected the number of cases referred to, all presenting a similar syndrome. Treatment was given by a nurse who was not familiar with the diagnosis of any of these cases. She was required to make progress notes for each case. The statistics submitted were obtained from these notes and my personal observations.

The purpose of my paper was not controversial, but to advance that which I consider a rational therapy in the management of these cases.

THE USE OF SULFONAMIDE DRUGS IN CERTAIN BACTERIAL INFECTIONS*

J. O. WEILBAECHER, JR., M. D.†
HOMER J. DUPUY, M. D.†
AND
H. M. TAYLOR, M. D.†
NEW ORLEANS

Sulfanilamide and certain of its derivatives have proved to be very valuable in the treatment of a wide variety of infectious diseases, but their good results are not a justification for their promiscuous use. Clinical and laboratory experience has shown that the bacteriostatic effect of each of these drugs varies according to the micro-organism against which it is used, and that a drug which is very effective against one strain may be relatively ineffective against another strain of the same organism. The value of sulfanilamide and its derivatives has been clearly established in infections due to the beta hemolytic streptococcus of the A group of Lancefield, for instance, but there is little convincing evidence of their efficacy in the treatment of infections due to streptococci of other groups.

It may be impossible or impractical to make elaborate bacteriologic studies in milder infections, but as a general rule it is important that in the selection of cases for chemotherapy and in the choice of the drug to be administered the decision be made on a bacteriologic rather than a clinical basis. Failure to observe this precaution undoubtedly helps to explain apparently conflicting reports on the use of sulfanilamide and its derivatives in infections classified as to organ or system involved rather than as to careful bacteriologic investigation.

It is equally important, in the use of sulfanilamide and its derivatives, to bear in mind that there is no known method of predicting the toxic reactions which may follow the use of these drugs in certain individuals. The possibilities of danger in this regard furnish another potent argument against their promiscuous use.

PUERPERAL INFECTION

Colebrook and Kenny,[1, 2] in 1936, made two reports on the use of prontosil (neoprontosil) and sulfanilamide in puerperal infections caused by B. hemolytic streptococcus. One or the other of the drugs was given orally and was supplemented, when necessary, by intramuscular injections of prontosil (neoprontosil) solution. In the majority of cases there was a prompt drop of temperature and a remission of clinical symptoms, and the mortality rate was reduced from more than 22 per cent to less than 5 per cent. The authors explained the action of prontosil (neoprontosil) as due to its sulfanilamide content, but other observers do not believe the small amount of sulfanilamide present in prontosil sufficient to explain the beneficial effects and consider that this compound exerts some other chemotherapeutic action in the body.

ERYSIPELAS

Both sulfanilamide and prontosil (neoprontosil) have proved of value in the treatment of erysipelas. Snodgrass and Anderson,[3] for instance, reported a mortality of 2.5 per cent in 160 patients treated with these agents as compared with a mortality of 6.6 per cent in a control group of 162 patients treated by other methods. They also observed that the duration of fever and toxemia was shortened, that the size of the lesion was decreased and its spread arrested, and that the number of complications was smaller. Studies of other large groups of cases have shown equally good results, and there is no longer any doubt of the superiority of chemotherapy over serotherapy and ultraviolet ray and roentgen ray therapy, which were formerly the methods of choice in the treatment of erysipelas. Oral therapy is usually sufficient, but parenteral methods of administration can be employed when absorption is questionable.

---

*Read as part of a Symposium on Chemotherapy before the Orleans Parish Medical Society, June 10, 1940.

†From the Department of Medicine of the School of Medicine of Louisiana State University and the Medical Division of Charity Hospital of Louisiana at New Orleans.

STREPTOCOCCIC MENINGITIS

The mortality rate of streptococcic meningitis has been strikingly reduced by the use of sulfanilamide and neoprontosil. Schwentker and his associates[4] reported three recoveries in four cases due to the hemolytic streptococcus; Neal and Appelbaum[5, 6] reported three recoveries in 17 cases, and Toomey and Kimball[7] reported 10 recoveries in 12 cases.

In these cases the oral administration of sulfanilamide or neoprontosil was supplemented by the subcutaneous injection of sulfanilamide (0.8 to 1.0 per cent in normal saline solution) when oral therapy or administration by stomach tube seemed inadequate. Schwentker and his associates[4] also advised intrathecal injection of sulfanilamide by gravity (15-25 c.c. of 0.8 per cent in normal saline solution). Toomey and Kimball[7] consider sulfanilamide the drug of choice and emphasize the necessity of adequate surgical drainage of any localized areas of infection in addition to chemotherapy.

SCARLET FEVER

The only beneficial effects observed in the treatment of scarlet fever by chemotherapy, according to several reports in the literature, is a reduction in the incidence of complications. Various writers have pointed out that to accomplish even this object either neoprontosil or sulfanilamide must be administered in full dosage throughout the entire course of the illness. They also advise the use of large amounts of specific serum intravenously in the early stages of severe types of scarlet fever.

STREPTOCOCCIC BACTERIEMIA

Excellent results have been reported from specific therapy in infections of Beta hemolytic streptococcic origin in which blood stream infection has occurred. Kolmer[8] treated 18 such patients with a mortality of 22 per cent, and the method has also been successful in cases of bacteriemia originating from cellulitis, burns and infected wounds. Kolmer emphasized the importance of supplementing chemotherapy with adequate surgical drainage of the causative lesion, and Lockwood and Lynch[9] gave the same advice, pointing out the relative ineffectiveness of sulfanilamide in the presence of purulent exudate and detritus in infected wounds. The latter authors, by the addition of small amounts of products of protein digestion to cultures of pneumococci, streptococci, staphylococci and colon bacilli, were able to demonstrate inhibition of the action of sulfanilamide against these organisms.

STREPTOCOCCIC PNEUMONIA

The largest series of cases on record in which streptococcic pneumonia was successfully treated by sulfanilamide was reported by Hageman and Blake[10] and consists of only seven cases.

PNEUMOCOCCIC PNEUMONIA

Sulfapyridine has been established as the drug of choice in the treatment of infections caused by the pneumococcus, and its extensive use in pneumococcic pneumonia has reduced the mortality of that disease to well below 10 per cent. The use of type specific antipneumococcic rabbit serum has produced almost as good results, but technical and other difficulties have made the widespread use of this method somewhat less practical.

Extensive clinical trials have established the following plan of therapy as satisfactory in pneumococcic pneumonia.[11]

1. Sulfapyridine should be administered orally in all cases. The sodium salt of sulfapyridine should be administered parenterally in cases of severe infection, in cases in which high blood levels of sulfapyridine are desirable and in cases in which absorption from the gastrointestinal tract is questionable.

2. Adequate doses of type specific antipneumococcic serum should also be injected intravenously over a period of one or two hours in the following instances: (a) All cases associated with bacteriemia or with other complications; (b) all cases of type III infection; (c) all cases in which treatment is not instituted until the third day of the illness or later; (d) all cases in which more than one lobe of the lung is involved; (e) all cases seen during the last week of pregnancy or the first week of the puer-

perium; (f) all cases in which the patients are debilitated as the result of a preceding operation or illness; (g) all cases in patients over 45 years of age.

Flippin and his associates[12] have recently compared the results in 100 patients with pneumococcic pneumonia treated with sulfathiazole and 100 control patients treated with sulfapyridine. Their observations, which we have corroborated in 15 cases, were that both drugs are equally effective, but that sulfapyridine seems to bring the temperature down more rapidly while the severity and frequency of nausea and vomiting seem to be considerably less when sulfathiazole is used.

PNEUMOCOCCIC MENINGITIS

The mortality of pneumococcic meningitis has been markedly reduced by the use of sulfapyridine. Kolmer[8] reported one recovery in three patients and Toomey and Roach[13] six recoveries in 12 patients. Hodes, Gamble and Burnett[14] reported eight recoveries in 17 patients, in contrast to a mortality of 100 per cent in 29 patients treated by other methods.

Sulfapyridine is the drug of choice in pneumococcic meningitis. It should be given in sufficient dosage to maintain levels in the spinal fluid of 10-15 mg. per 100 c.c. In order to accomplish this result oral therapy must usually be supplemented by the intravenous administration of the sodium salt at four to six hour intervals. In some cases it may be of value to administer 0.3 to 0.7 per cent solution of the sodium salt as hypodermoclysis. Toomey and Roach[13] also emphasized the importance of the additional intravenous use of type specific antipneumococcic serum in massive doses.

MENINGOCOCCIC MENINGITIS

The mortality of meningococcic meningitis has been markedly reduced since the introduction of sulfanilamide and prontosil. High levels of the drug must be maintained in the blood and spinal fluid, to accomplish which oral therapy must be supplemented by parenteral therapy. Sulfanilamide (8 per cent in normal saline solution) may also be administered as hypodermoclysis or by the intrathecal route. Anti-meningococcic antiserum should be given in full dosage.

Kolmer[8] considers sulfanilamide superior to neoprontosil because of its more rapid penetration, and believes that sulfapyridine may be even more effective.

STAPHYLOCOCCIC INFECTIONS

Experimental studies on the value of the sulfonamide drugs show that mice are protected against massive infections with *Staph. aureus* by sulfanilamide, neoprontosil, sulfathiazole, and sulfamethylthiazole in order of increasing effectiveness. In human subjects, however, results with the sulfonamide drugs have been less striking in staphylococcic than in other bacterial infections, perhaps because of the massive tissue injury usually associated with such infections (Lockwood and Lynch[9]). These authors, as has previously been mentioned, have demonstrated that minute amounts of products of protein digestion inhibit the action of sulfanilamide on bacteria and have stressed the importance of prompt and adequate drainage of purulent foci if good results are to be expected.

Recent literature indicates that thiazole derivatives are the drugs of choice in the treatment of staphylococcic infections and that oral therapy may be supplemented by the intravenous injection of sodium sulfathiazole to insure high blood levels.

UNDULANT FEVER

Long and Bliss[15] have questioned the good results reported in the treatment of undulant fever with sulfanilamide, pointing out that unless the follow-up covers a long period of time one cannot be certain that cure has occurred because of the tendency to recurrence in this disease. They observed five patients with undulant fever, in each of whom the immediate response was good but four of whom had recurrences after treatment was discontinued. In spite of these equivocal results, they advocate the oral use of chemotherapy to shorten the duration of the acute stage of the disease.

CLOSTRIDIUM WELCHII INFECTIONS

Bohlman,[16] who reported very good results in three patients with gas bacillus infection treated by sulfanilamide, believes that the drug exerts its beneficial action by checking the symbiotic growth of streptococci. He emphasizes the importance of the additional use of surgical measures and specific antitoxin. Long and Bliss[15] advocate the use of sulfanilamide as a prophylactic measure in the treatment of crushing injuries.

TYPHOID FEVER

Several reports are available concerning the use of sulfonamide drugs in small numbers of patients with typhoid fever. We have personally had good results in a small number treated with sulfathiazole and sulfamethylthiazole, but have not yet observed a sufficient number of cases to justify definite conclusions.[17]

TULAREMIA

The value of the sulfonamide drugs in tularemia has not yet been established in large groups of patients. We have not personally observed any definite response to either sulfanilamide or sulfapyridine, but have seen striking improvement following sulfathiazole and sulfamethylthiazole in several patients who were seriously ill with pulmonic involvement.[18]

ULCERATIVE COLITIS

Brown and his associates,[19] and Collins[20, 21] have treated chronic ulcerative colitis with sulfanilamide and neoprontosil with good results. Collins advocates the maintenance of high blood levels by oral therapy, as well as the administration of neoprontosil solution by rectal instillation.

VIRUS DISEASES

Although sulfanilamide and sulfapyridine have proved of value in the treatment of lymphogranuloma venereum, the only beneficial effect observed in other virus diseases, according to Kolmer,[8] can probably be attributed to their effect in preventing or limiting the growth of pyogenic bacteria.

MISCELLANEOUS INFECTIONS

It is difficult to determine the value of the sulfonamide drugs in the treatment of infections of the upper respiratory passages, paranasal sinuses and mastoids because the proper bacteriologic studies are lacking in most of the cases on record. Their use in milder infections of this sort is questionable because of the toxic reactions which may follow, but their use in severe infections would seem entirely justified.

TOXIC REACTIONS FOLLOWING CHEMOTHERAPY

As a matter of convenience the signs, incidence, significance and treatment of the toxic manifestations of the sulfonamide drugs are presented in the form of a table, which has been modified from the similar

COMMON TOXIC MANIFESTATIONS OF THE SULFONAMIDE DRUGS

	Signs	Incidence	Treatment	Significance
Skin	Cyanosis	50% plus	None	Not serious
	Rash	1-6%	Stop drug; avoid exposure to ultraviolet light	Usually subsides
Blood	Neutropenia			
	mild	40% plus	Stop drug if progressive	Usually rapid return to normal
	severe	Uncommon	Stop drug; pentnucleotide; transfusion	Sometimes fatal
	Hemolytic anemia			
	mild	Common	Stop drug if progressive	Usually rapid return to normal
	severe	1-10%	Stop drug; transfusion	Usually subsides; may be fatal
Kidney	Hematuria	5% plus	Stop drug if marked	Usually responds Ureteral obstruction due to uroliths may develop
Alimentary tract*	Anorexia, nausea and vomiting	50% plus	May require parenteral therapy if severe	Usually subsides and continued treatment possible
Nervous system	Dizziness	Common	May require bed rest	Not serious
	Depression, disorientation, psychosis	Not common	Stop drug; force fluids	Serious
	Neuritis	Not common	Stop drug; vitamin therapy	Usually subsides after long period of time
	Fever	3-9%	Stop drug	Difficult to be certain if of drug origin

---

*Toxic hepatitis has been observed.

tables presented by Keefer,[22] Long and his associates,[23] and Kolmer.[8]

SUMMARY

The therapeutic effect of the sulfonamide drugs in streptococcic, pneumococcic, staphylococcic and miscellaneous infections has been briefly reviewed. The results in many such infections are extremely good. Such therapy is both safer and more effective if it is based upon careful laboratory studies.

REFERENCES

1. Colebrook, L., and Kenny, M.: Treatment of human puerperal infections and of experimental infections in mice with prontosil, Lancet, 1 :1279, 1936.

2. Colebrook, L., and Kenny, M.: Treatment with prontosil of puerperal infections due to haemolytic streptococci, Lancet, 2 :1319, 1936.

3. Snodgrass, W. R., and Anderson, T.: Prontosil in treatment of erysipelas; controlled series of 312 cases. Brit. M. J., 2 :101, 1937.

4. Schwentker, F. F., Freeman, P. C., Morgan, W. A., Lindsay, J. W., and Long, P. H.: The use of para-amino-benzene-sulphonamide or its derivatives in the treatment of Beta hemolytic streptococcal meningitis, Bull. Johns Hopkins Hosp., 60 :297, 1937.

5. Neal, J. B., and Appelbaum, E.: Experience with sulphanilamide in meningitis, Am. J. M. Sci., 195 :175, 1938.

6. Neal, J. B.: Treatment of acute infections of central nervous system with sulfanilamide, J. A. M. A., 111 :1353, 1938.

7. Toomey, J. A., and Kimball, E. R., Jr.: Meningitis caused by *Streptococcus hemolyticus* and treated with sulfanilamide, J. A. M. A., 112 :2586, 1939.

8. Kolmer, J. A.: Progress in chemotherapy of bacterial and other diseases, Arch. Int. Med., 65 :671, 1940.

9. Lockwood, J. S., and Lynch, H. M.: Studies on mechanism of action of sulfanilamide; influence of proteolytic products on effectiveness of sulfanilamide, J. A. M. A., 114 :935, 1940.

10. Hageman, P. O., and Blake, F. G.: Clinical experience with sulfanilamide in treatment of Beta hemolytic streptococcic infections, Am. J. M. Sci., 195 :163, 1938.

11. Weilbaecher, J. O. Jr.: The specific treatment of pneumococcic pneumonia; a review of recent literature and analysis of 100 cases, New Orleans M. & S. J., 92 :618, 1940.

12. Flippin, H. F., Schwartz, L., and Rose, S. R.: The comparative effectiveness and toxicity of sulfathiazole and sulfapyridine in pneumococcic pneumonia, Ann. Int. Med., 13 :2038, 1940.

13. Toomey, J. A., and Roach, F. E.: Pneumococcus meningitis, Ohio State M. J., 35 :841, 1939.

14. Hodes, H. L., Gimbel, H. S., and Burnett, G. W.: Treatment of pneumococcic meningitis with sulfapyridine and sodium salt of sulfapyridine, J. A. M. A., 113 :1614, 1939.

15. Long, P. H., and Bliss, E. A.: The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and its Related Compounds, 1939, The Macmillan Company, New York.

16. Bohlman, H. R.: Sulfanilamide in surgical practice, Am. J. Surg., 42 :824, 1938.

17. Weilbaecher, J. O., Jr., Moss, E. S., Taylor, H. M., and Dupuy, H.: The treatment of typhoid fever by thiazole derivatives of sulfanilamide; preliminary report of four cases, South. M. J., 33 :645, 1940.

18. Weilbaecher, J. O., Jr., and Moss, E. S.: The treatment of tularemia with the thiazole derivatives of sulfanilamide, New Orleans M. & S. J., 92 :694, 1940.

19. Brown, A. E., Herrell, W. E., and Bargen, J. A.: Neoprontosil (oral) in the treatment of chronic ulcerative coiltis, Ann. Int. Med., 13 :700, 1939.

20. Collins, E. N.: The use of sulfanilamide in the treatment of chronic ulcerative colitis, Cleveland Clin. Quart., 5 :161, 1938.

21. Collins, E. N.: The treatment of chronic ulcerative colitis with sulfanilamide, Ann. Int. Med., 14 :55, 1940.

22. Keefer, C. S.: Use of sulfanilamide in treatment of various infections, Am. J. M. Sci., 195 :701, 1938.

23. Long, P. H., Haviland, J. W., Edwards, L. B., and Bliss, E. A.: Clinical evaluation of use of sulfanilamide, neoprontosil, sulfapyridine and sulfathiazole in treatment of infections, Mississippi Doctor, 17 :541, 1940.

ADDITIONAL BIBLIOGRAPHY

Banks, H. S.: Serum and sulphanilamide in acute meningococcal meningitis: preliminary survey based on 113 cases, Lancet, 2 :7, 1938.

Banks, H. S.: Chemotherapy of meningococcal meningitis; review of 147 consecutive cases, Lancet, 2 :921, 1939.

Barlow, O. W., and Homburger, E.: Specific chemotherapy of experimental staphylococcus infections with thiazole derivatives of sulfanilamide, Proc. Soc. Exper. Biol. & Med., 42 :792, 1939.

Benn, E. C.: Sulfanilamide in treatment of scarlet fever, Brit. M. J., 2 :644, 1939.

Bohlman, H. R.: Gas gangrene treated with sulfanilamide; report of three cases, J. A. M. A., 109 :254, 1937.

Bryant, J., and Fairman, H. D.: Chemotherapy of cerebrospinal fever in the field, Lancet, 1 :923, 1939.

Curtis, W. L.: Sulfanilamide in treatment of tularemia, J. A. M. A., 113 :294, 1939.

Herrell, W. E., and Brown, A. E.: Clinical use of sulfamethylthiazole in infections caused by *Staphylococcus aureus*: preliminary report, Proc. Staff Meet., Mayo Clin., 14 :753, 1939.

Long, P. H., and Bliss, E. A.: Observations upon mode of action and clinical use of sulfanilamide in urinary tract infections, South. M. J., 31 :308, 1938.

Neumann, C. Z.: Treatment of undulant fever with prontosil, Brit. M. J., 2 :342, 1938.

Peters, B. A., and Harvard, R. V.: Chemotherapy of streptococcal infections with p-benzylamino-benzene-sulphonamide, Lancet, 1 :1273, 1937.

Sako, W., Dwan, P. F., and Platou, E. S.: Sulfanilamide and serum in treatment and prophylaxis of scarlet fever, J. A. M. A., 111 :995, 1938.

Schwentker, F. F., Gelman, S., and Long, P. H.: Treatment of meningococcic meningitis with sulfanilamide; preliminary report, J. A. M. A., 108 :1407, 1937.

Somers, R. B. V.: M & B 693 in cerebrospinal fever; review of 144 cases treated under field conditions, Lancet, 1 :921, 1939.

THE TREATMENT OF LYMPHOGRANULOMA INGUINALE WITH NEOPRONTOSIL*

CHARLES BARRETT KENNEDY, M. D.†
JAMES KIRBY HOWLES, M. D.†
GEORGE SMULLEN, M. D.†
AND
MARION ELMER KOPFLER, M. D.†
NEW ORLEANS

The lack of unanimity in the treatment of lymphogranuloma inguinale, especially in the ambulatory patients, has prompted this study. We have attempted to give maximum therapeutic dosage to these patients and at the same time keep them at their regular employment.

It has been our plan in both the acute and chronic cases to give a dosage of 1/3 grain of neoprontosil per pound of body weight daily for one week, then 1/4 grain per pound daily for at least four weeks. Patients returned at weekly intervals for new supplies of the drug, gland measurements, rectal examinations and in some cases photographic studies (see cases #3, #4). The only contraindication to the use of neoprontosil has been a history of sensitivity to drugs of the sulfanilamide group. Safeguards included frequent blood counts, urine examinations, together with instructions to the patients to keep a daily temperature chart and to avoid alcohol, other drugs, and prolonged exposure to sunlight. The importance of regular diet and sufficient sleep was stressed. Patients were instructed to stop the drug in the event of headache, nausea, vomiting, diarrhea, and skin rashes.

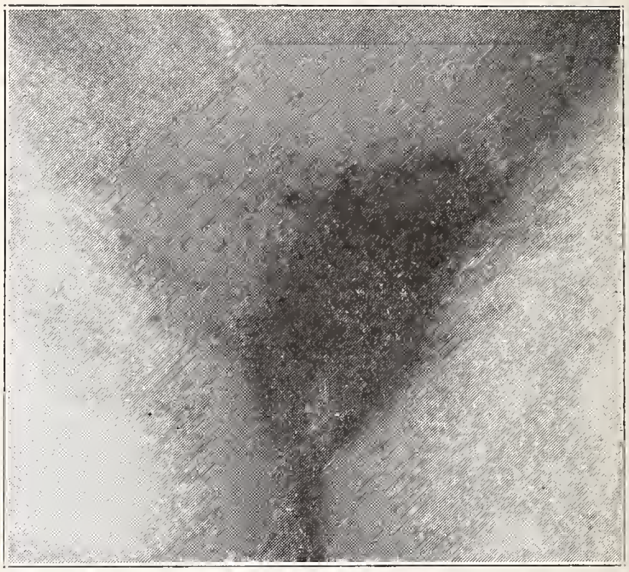


Fig. 1b. Case No. 3 showing patient after treatment over a period of 30 days.

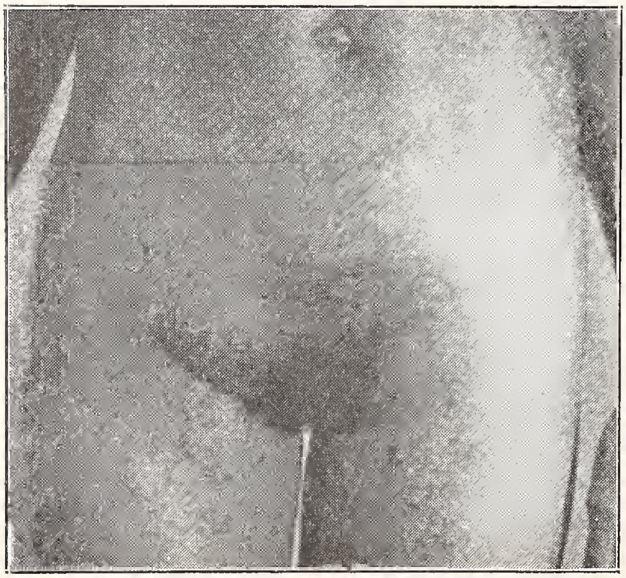


Fig. 1a. Case No. 3 showing patient before treatment.

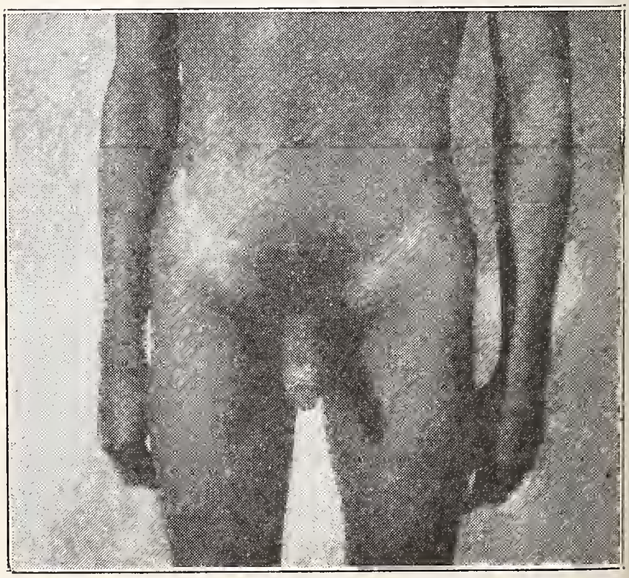


Fig. 2a. Case No. 4 showing patient before treatment.

---

*Neoprontosil furnished by Medical Research Department, Winthrop Chemical Company.

†From the Department of Dermatology and Syphilology, Louisiana State Charity Hospital, New Orleans, Louisiana.

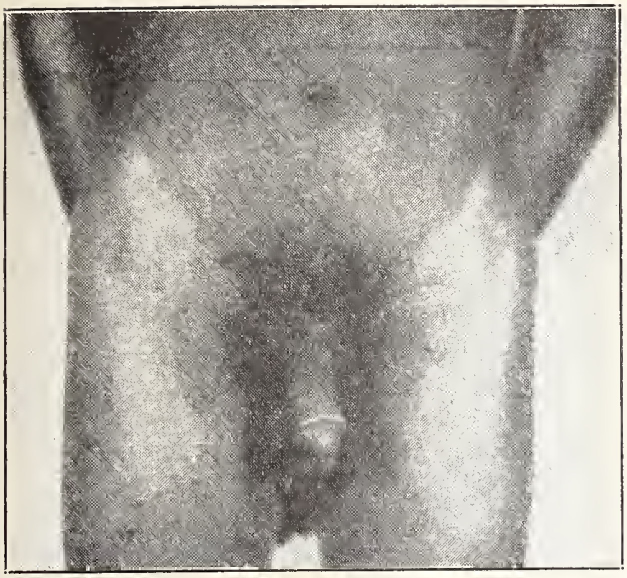


Fig. 2b. Case No. 4 showing patient after treatment over a period of 40 days.

In the acute cases there was a prompt alleviation of local signs and symptoms. We have shown in Chart 1 the results of our series of 19 cases. Fourteen were completely healed, three were responding to treatment but did not return for check up and have been lost sight of. Two have been improving under therapy, but it is too early to report on the results as yet. It required an average of 98.7 grams and 34.9 days to produce a clinical cure. In two of our patients relapses occurred three weeks after neoprontosil was discontinued. In both of these, resumption of drug produced prompt healing. We attempted to evaluate our results by a comparison with results of acute cases treated in the same clinic by other methods. Under treatment with tartar emetic 5 c.c. of 1 per cent solution intravenously in conjunction with bismuth salicylate 1 c.c. in oil intramuscularly at weekly intervals, sodium iodide and sodium salicylate gram 1 intravenously, at weekly intervals, the average duration of 35 cases was 497.5 days. In 66 cases collected from the American literature treated with sulfanilamide compounds a clinical cure was produced in 56 patients, a fair result in seven, there was no improvement in one, two patients were lost sight of. Their time under treatment varied from 30 to 60 days and the total amount of drug from 75 to 150 grams. In 34 cases collected from the foreign literature treated with related compounds there were 28 with clinical cures, five with improvement, and one with no improvement. Both total amount of drugs and duration of treatment were much less than in our series.

In our clinic, chronic cases were treated for an average of 46.2 days with an average total of 93.7 grams. In six of our nine patients there was an improvement in the general health, gain in weight and a return to more normal bowel movements. There was no change in pathology present in the rectum. In two of the remaining three patients the drug had to be discontinued because of diarrhea; in the other, continued treatment failed to produce improvement. Chronic cases in our clinic treated with other methods showed no improvement. In 24 cases collected from the American literature treated with sulfanilamide compounds in amounts comparable to those we used, 16 showed marked improvement, four slight improvement, two no improvement, and two were lost sight of. In 16 cases collected from the foreign literature treated with sulfanilamide compounds the results were very good in nine patients and poor in seven patients. In many of the improved patients reported in both American and foreign literature, softening of the scar tissue in the rectum and a lessening of the perirectal infiltration was noted; in none of our patients did we note a corresponding change in pathology.

It is of interest to note that sulfanilamide compounds have produced in the acute stage of this virus disease a clinical cure. Other virus diseases in which the drug has been tried have not responded. Also of interest is its effectiveness even in the presence of suppuration. In other diseases suppuration tends to impede the action of the drug. As a matter of interest the Frei changed from positive to negative in two acute cases after treatment.

CHART 1

PERTINENT CLINICAL DATA IN 19 ACUTE CASES

Administrative data	Duration before Rx (days)	Days under Rx	No. clinic visits	Clinical findings before treatment	Laboratory data	Total amount drugs	Remarks
1. # 58920 CF—24 Wt. 162	31	42	8	Bilateral adenopathy with draining sinuses	Frei—pos. Wass.—neg.	150 grams	None
2. # 69125 CM—20 Wt. 153	52	42	7	Right adenopathy 3″ x 2″	Frei—pos. Ducrey—pos. Dark field—neg. Donovan—neg.	112 grams	Ducrey negative end of treatment. Frei—negative
3. # 0058 CF—23 Wt. 100	21	42	10	Right adenopathy 2½″	Wass.—pos. Frei—pos.	56 grams	None
4. # 91566 CM—21 Wt. 130	42	56	12	Right adenopathy 3″, left 2½″	Frei—pos. Wass.—pos. Ducrey—neg.	135 grams	Frei negative end of treatment
5. # 56808 CF—28 Wt. 140	28	49	11	Right gland 1″, left ¼″	Frei—pos. Wass.—neg.	119 grams	Frei remained positive
6. # 217689 CM—34 Wt. 145	90	70	11	Left gland 1″	Frei—pos. Ducrey—pos. Wass.—pos. Dark field—neg. Donovan—neg.	168 grams	None
7. # 10744 CM—20 Wt. 150	14	42	11	Left gland 3″, right gland 1″	Frei—pos. Wass.—neg.	105 grams	Frei weakly positive completion of treatment
8. #95821 CM—18 Wt. 135	60	27	6	Right gland 2″	Frei—pos. Wass.—neg.	86 grams	None
9. # 73223 CF—25 Wt. 110	48	28	6	Left gland 2″	Frei—pos. Wass.—pos.	60 grams	None
10. # 117488 CF—19 Wt. 110	14	49	8	Right gland 3″ draining sinus	Frei—pos.	75 grams	Small dosage because of vomiting of pregnancy
11. # 196110 CM—21 Wt. 130	270	120	14	Right gland 2″ x 1″ with draining sinus	Frei—pos. Wass.—pos.	263 grams	Relapse 3 weeks after drug was discontinued
12. # 119719 CF—19 Wt. 120	7	19	4	Left gland 3″ x 2″	Frei—pos. Wass.—pos.	47 grams	None
13. # 224480 CM—23 Wt. 157	180	14	3	Right gland 3″ x 1″, left 6 discrete glands	Frei—pos. Dark field—pos. Ducrey—pos.	44 grams	None
14. # 218390 CM—39 Wt. 155	11	14	2	Left gland 1½″, right gland 1″	Frei—pos. Wass.—neg.	42 grams	Did not return for check-up
15. # 10381 CM—35 Wt. 150	28	21	3	Right gland 3″ x 1″ with sinus	Frei—pos. Wass.—pos.	63 grams	Delinquent after three weeks
16. # 187456 CF—15 Wt. 130	21	28	5	Left gland 3″ x 2″	Frei—pos. Wass.—pos.	70 grams	Still under treatment
17. # 137233 CM—27 Wt. 161	18	15	3	Right gland 3″ x 2½″, left 2″ x 2″	Frei—pos. Ducrey—pos. Wass.—neg.	42.6 grams	Still under treatment
18. # 211381 CM—29 Wt. 150	21	21	6	Left gland 2″ x 4″ with draining sinus	Frei—pos. Wass.—pos.	60 grams	Incision and drainage nine days before treatment was started
19. # 140943 CF—28 Wt. 120	14	28	4	Right gland 1″	Frei—pos. Wass.—neg.	60 grams	Did not return for treatment

CHART 2

PERTINENT CLINICAL DATA IN 9 CHRONIC CASES

Administrative data	Duration before Rx (years)	Duration Rx (days)	Clinic visits	Pathology	Subjective signs	Laboratory	Total amount	Remarks
1. # 124549 CF—38 Wt. 119	5½	77	11	Rectal stricture	Tenesmus, bloody stool, muco-purulent discharge, diarrhea.	Frei—pos. Blood Wass.—neg. Spinal fluid—neg.	158 grams	Dilated 32, Bi. 84, TE 70 with no improvement before starting neoprontosil. Now feels better, gaining weight, appetite better.
2. # 2791 CF—30 Wt. 105	9	7	3	Rectal stricture, multiple rectal sinuses	Constipation, muco-purulent discharge	Frei—pos. Blood Wass.—pos.	28 grams	Colostomy 1936, Bi. 27, neo 7 before neoprontosil started. General improvement with neoprontosil.
3. # 136423 CF—24 Wt. 98	3	56	8	Rectal stricture	Constipation, blood mucous stool, tenesmus	Frei—pos. Wass.—neg.	93 grams	Dilated 2, TE 3, with no improvement. Rectal complaint improved, bowel movements normal with neoprontosil.
4. # 120070 CF—24 Wt. 110	8	21	10	Rectal stricture	Diarrhea, constipation, blood & mucous stool, tenesmus	Blood Wass.—pos. Frei—pos.	56 grams	Bi. 25, neo 10 with no improvement. Drug discontinued due to diarrhea.
5. # 23315 CF—65 Wt. 135	5	109	11	Rectal stricture	Constipation, blood, mucous & pus in stool, tenesmus	Frei—pos. Wass.—neg.	179 grams	Dilated 24, TE 44 with no improvement. Rectal complaint better, appetite better and general improvement.
6. # 73524 CF—65 Wt. 139	4	104	16	Rectal stricture, rt. ing. gland 2" x 3" with draining sinus	Constipation, inguinal mass	Frei—pos. Wass.—neg.	231 grams	Bi. 22, TE 8, dilated 2 with no improvement. Rectal complaint improved. Adenopathy healed with treatment, recurred three weeks after stopping drug. Healed on resuming treatment.
7. #51868 CF—22 Wt. 107	4	14	2	Rectal stricture	Constipation, tenesmus, anorexia, loss of weight	Frei—pos. Wass—pos.	30 grams	Bi. 16, neo 11. Feels better in general. Bowels about the same. Still under treatment.
8. # 22423 CF—20 Wt. 115	1	14	2	Edema of the labia, rectal stricture	Constipated, muco-purulent discharge	Frei—pos. Wass.—neg.	32 grams	TE 9 and sulfanilamide. Drug caused illness and was discontinued. Patient receiving neoprontosil and toleration good.
9. # 88876 CF—20 Wt. 136	¾	14	2	Stricture with inguinal adenopathy	Constipated, bloody stool	Frei—pos. Wass.—neg.	37 grams	Bi. 10, TE 9 before using neoprontosil. Still under treatment, condition about the same.

CONCLUSIONS

1. Neoprontosil is a safe drug for ambulatory treatment in acute lymphogranuloma inguinale and produces clinical cure in a majority of cases.

2. Chronic cases are symptomatically benefited by its use, but no change in rectal pathology has been noted in our series.

BIBLIOGRAPHY

1. Schaffer, Louen W., and Arnold, Effie: Lymphogranuloma inguinale—especially its treatment with sulfanilamide, Arch. Derm. & Syphil., 38:705, 1938.

2. Hamilton, Glader R.: Treatment of venereal lymphogranuloma with sulfanilamide, The Military Surgeon, November, 1938.

3. Gray, Laman A., and Barnes, Malcolm L.: Lymphogranuloma venereum in female, Am. J. Surg., 48:277, 1940.

4. Marshall, E. K. Jr., and Litchfield, J. T. Jr.: The determination of sulfanilamide, Science, 88:85, 1938.

5. Hasseltine, H. C.: Relation of venereal disease to obstetrics, Am. J. Surg., 44:14, 1940.
6. Montel, L. R., and Nguyen, Van Th.: Treatment of Nicolas-Favre disease with sulfanilamide, Bull. Soc. de Dermat. et Syph., 45:652, 1938.
7. Shropshear, George: Sulfanilamide in the treatment of stricture of the rectum, caused by lymphogranuloma venereum, Illinois M. J., 74:153, 1938.
8. Trautman, J. A., and Thomas, H. A.: Sulfanilamide and fever in the treatment of venereal lymphogranuloma, New Orleans M. & S. J., 92:441, 1940.
9. Knight, Alva A., and David, Vernon C.: The treatment of venereal lymphogranuloma with sulfanilamide, J. A. M. A., 112:527, 1939.
10. Laird, Sidney: Sulfanilamide in climatic bubo, Brit. M. J., 2:1043, 1938.
11. Nair, V. Govindan, and Chetty, V. V.: Chemotherapy and lymphogranuloma inguinale, Indiana J. Ven. Dis., 5:28, 1939.
12. Marino, A. W., Buda, Alfred; Turell, Robert, and Nerb, Louis: The treatment of venereal lymphogranuloma with sulfanilamide, Am. J. Surg., 43:343, 1939.
13. Levy, Max: Treatment of rectal lymphogranuloma inguinale, Arch. d. mal. de l'app. digestif, 28:830, 1938.
14. Rachet, J., and Cachera, R.: Treatment of lymphogranuloma inguinale, Arch. d. mal. de l'app. digestif, 28:735, 1938.
15. Savignac, R.: What treatment to use for rectal localization of lymphogranuloma inguinale, Arch. d. mal. de l'app. digestif, 28:642, 1938.
16. Lambeing, A., Brunkes, J., Bouden, C., Bregaw, P.: Indications for medical and surgical treatment of rectal localization of lymphogranuloma inguinale, Arch. d. mal. de l'app. digestif, 28:865, 1938.
17. Moutier, F.: Treatment of rectal localization of lymphogranuloma inguinale with antimony, Arch. d. mal. de l'app. digestif, 28:637, 1938.

STUDIES ON THE BLEEDING TENDENCY AND VITAMIN K THERAPY IN NEWBORN CHILDREN*

HENRY LEIDENHEIMER, JR., M. D.†
AND
ANDREW STIRLING ALBRITTON, M. D.†
NEW ORLEANS

Although Whipple,[1] as early as 1912, had suggested that the cause of the hemorrhagic diathesis in obstructive jaundice might be a deficiency of prothrombin, the suggestion could not be turned to practical account until some method had been devised for determining the prothrombin content of the blood. Such a test was published by Quick and his associates[2] in 1935, at approximately the same time that the work begun by Dam and his associates[3,4] in 1929 on a certain hemorrhagic disease in chicks had been proved to be due to a deficiency of a vitamin found in cereals, green vegetables, alfalfa, hay, hog liver fat and similar sources. Other experimental observations,[5] which also culminated at approximately the same psychologic time, completed the concept of the hemorrhagic diathesis in jaundice which is held at the present time and which may be stated as follows: A deficiency of prothrombin in the blood is the immediate source of the bleeding. A deficiency of the fat-soluble vitamin K causes the diminution in the prothrombin. A deficiency of bile salts in the intestinal tract causes inadequate absorption of, and thus the deficiency in, vitamin K. Hepatic damage is probably responsible for and is positively associated with the diminished prothrombin content of the blood.

With the establishment of this hypothesis, even though the various premises which make it up are still not entirely understood, the control of the hemorrhagic diathesis became an entirely practical matter. It was natural that an endeavor should be made to apply these discoveries to other diseases in which bleeding is a factor. This has been done, either with no success at all or with very indifferent success, except in the bleeding tendency of the newborn, the control of which seems to have become as practical as the control of the hemorrhagic diathesis of obstructive jaundice.

PREVIOUS STUDIES IN THE BLEEDING TENDENCY OF THE NEWBORN

In 1937 Brinkhous, Smith and Warner,[6] in a study of young infants of various ages, published results which showed that the plasma prothrombin levels (by their two-stage titration technic) were only about half as high as in adults. Further studies (by the Quick prothrombin time test and their own two-stage and bedside tests) on 38 normal infants revealed that between the second and sixth days of life there occurred a sharp though transient fall in values which had not been recognized in their first studies. At the end of five to seven days of life all tests revealed practically the same values as prevailed at birth.

---

*Read before the Orleans Parish Medical Society, June 10, 1940.

†From the Departments of Obstetrics and Gynecology and of Pediatrics of the School of Medicine of Louisiana State University and Charity Hospital of Louisiana at New Orleans.

In 1939 Quick and Grossman[7] published a study of 10 newborn infants which showed that the prothrombin time level at six hours of life is not strikingly different from that of cord blood, that the level begins to fall at the end of 24 hours, and that an upward tendency is apparent at the end of 48 hours. Other observations to the same general effect were made by Dam, Tage-Hansen and Plum,[8] Waddell and Guerry,[9] Hellman and Shettles,[10] Shettles, Delfs and Hellman,[11] and others.

Since the highly fatal bleeding of newborn infants occurs within the period in which a decreased prothrombin concentration had been observed in these various studies, the cause and effect relationship was immediately apparent. The explanation of the decrease and of the subsequent elevation was, however, somewhat more obscure. Owen and his associates[12] suggested that in the plasma of newborn infants prothrombin conversion occurs quite rapidly, thus compensating for a relative deficiency in amount. Quick and Grossman reasoned that there is apparently no built-up reserve of vitamin K in the fetus and that in the first 24 hours of life the clotting factor may be reduced to such a degree that all newborn infants are in definite jeopardy of hemorrhage. During the first 24 hours, furthermore, not sufficient food is taken to furnish any significant amount of the antihemorrhagic vitamin. Why, then, do all infants not bleed instead of only a few? Quick and Grossman pointed out that vitamin K is produced by bacterial action, it having been shown that significant amounts are produced in the feces by rats and chicks fed a vitamin K-free diet. It is logical to assume, therefore, that as soon as the baby ingests food or water, regardless of the amount or kind, the intestinal contents, normally sterile at birth, immediately become infected, and the synthesis of vitamin K is thus begun. Its absorption is brought about with the aid of bile, and the risk of bleeding due to prothrombin deficiency is usually ended.

This is substantially the explanation now accepted by most workers in this field. Some have considered hemorrhagic disease in infancy a nutritional disease. At present it seems better merely to describe it as a disease of newborn infants characterized by subcutaneous, intramuscular and gastrointestinal hemorrhages, and anemia, and attended by a death rate which may be as high as 50 to 80 per cent. It is also, as Waddell and Guerry note, attended with a high percentage of remote physical and mental disability.

With the demonstration of lowered prothrombin concentration levels in newborn infants, the method of correction was obvious, the provision of an adequate supply of vitamin K. This form of therapy was employed, with striking success, at almost the same time, by a number of observers, including Dam and his associates, Hellman and his group, and Waddell and Guerry, the study by the latter investigators being particularly complete and carefully controlled. In most instances the vitamin K was administered directly to the children. Hellman and his associates also administered it to the mothers prior to delivery, finding an improvement in the plasma prothrombin of the infants even when the maternal administration covered only the period of 24 hours immediately preceding delivery.

PERSONAL STUDIES

Our first studies[13] on the bleeding tendency of the newborn consisted of a series of control determinations on infants and their mothers by the Quick prothrombin time test, the bedside test of Ziffren and his associates,[14] and the Boyce serum volume index.[15] All tests (table 1) revealed practically the same general tendencies: The maternal values, generally speaking, were somewhat lower than normal, perhaps because the studies were made during the winter months, when the natural supply of vitamin K in the diet is somewhat less than in the summer months. The values for newborn children (by all three tests) were substantially lower than normal adult values on the first day and were still further decreased on the third day of life. There was a notable increase in values in most cases, usually to considerably above the level at birth, on the fifth day.

The values in infants in some cases at birth, in many cases on the third day, and in occasional cases on the fifth day were well within the range which by the usual standards in all tests would be considered potentially or actually indicative of hemorrhage, yet none of these children bled. Quick and Grossman had reported two cases in which infant prothrombin concentration values were as low as 7 per cent, and others had made similar observations. There seems no doubt, therefore, that a fresh set of standards will have to be devised for infants, regardless of the test of bleeding tendency used.

Following the control studies just described, studies were made with various types of vitamin K therapy. Vitamin K, in the form of thyloquinone (Squibb) was administered to 21 mothers for periods varying from two days to two weeks before delivery with no perceptible results except that the fall in values on the third day was somewhat less than in the control cases, the results being approximately the same whether 1 mg. or 2 mg. doses were used (table 1). This observation is not in agreement with the observations of Hellman and his group, who found a marked increase in the prothrombin concentration values of newborn children when the maternal administration of vitamin K took place even a few hours before delivery. The discrepancy in the findings may perhaps be explained by variations in the thromboplastin used for the tests. It has been pointed out by several observers that this is a definite source of error. In the light of the well established fact that there is no storage of vitamin K within the body, we consider our own failure to affect infant values by its maternal administration to be entirely reasonable.

The vitamin was next administered directly to the infants at birth and for a period of four days thereafter. When it was used in 1 mg. doses the usual fall in values did not occur on the third day of life and the values on the fifth day were somewhat higher than at birth (table 1). When the vitamin was administered in 2 mg. doses, the values on the third day were considerably higher than at birth, and by the fifth day they were still further increased, in most cases being within the safe normal adult range (table 1).

MATERIALS AND METHODS

The observations described were made on 41 mothers and 111 children (63 white, 48 colored) and involved a total of more than 450 single tests. No appreciable racial differences were noted in the values. Also no differences in values were noted between children with physiologic jaundice and those in whom it was not present.

After an adequate number of comparative tests had been made to make clear that the trend of values was the same whatever test was used, the great majority of the remaining tests were made by the Boyce serum volume index. It requires only a syringe and a test tube for its performance,

TABLE 1

SUMMARY OF STUDIES ON THE BLEEDING TENDENCY IN NEWBORN INFANTS*

Birth	Third day	Fifth Day	
94%	92%	92%	Prothrombin concentration (Ziffren et al. bedside test) in 10 mothers
66%	49%	66%	Prothrombin concentration (bedside test) in 10 children born of these mothers
0.82	0.85	0.86	Boyce serum volume index in 11 mothers
0.78	0.63	0.74	Serum volume index in 11 infants born of these mothers
0.75	0.71	0.81	Serum volume index in 10 infants born of mothers treated with 1 mg. thyloquinone for varying periods before delivery
0.76	0.70	0.83	Serum volume index in 9 infants born of mothers treated with 2 mg. thyloquinone as above
0.67	0.71	0.78	Serum volume index in 11 infants treated with 1 mg. thyloquinone immediately after birth and for four days thereafter
**0.71	0.83	0.95	Serum volume index in 11 infants treated with 2 mg. thyloquinone as above

---

*All figures represent averages.

**Note the absence of the usual third-day fall and the rise to normal adult values in children thus treated.

and its extreme simplicity therefore made it the most generally applicable for our purposes. It was used in more than 350 single tests. Commercial thromboplastin has become available to us since we began our studies and should eliminate the previous sources of error resulting from variations in the laboratory-prepared material.

Securing the blood for these studies has furnished something of a problem, particularly in children with a hemorrhagic diathesis, in whom the loss of even a small amount of blood might sometimes introduce a factor of risk. Blood for the tests made when we first began the study was taken from the cord and the values were compared with the values in blood secured from the fontanel or vein. We found that the values for the blood from the cord were somewhat higher than for blood secured from other sources (the serum volume index for the cord blood in 11 cases was 0.82, as compared with 0.78 for venous blood). This is at variance with the observations of Rush[16] who found the values in the two sources approximately the same by the Quick prothrombin time test.

Blood for succeeding (postnatal) tests was secured either from the anterior fontanel or from the external jugular vein. Securing it is not always easy and is sometimes not entirely free from risk in a newborn infant, particularly a child who is premature or who should not for other reasons be subjected to any avoidable strain. We have had no experience with the plan suggested by Bray and Kelley[17] of securing blood from the heel.

The vitamin K used was either in the form of klotogen Abbott, a natural concentrate, or in the form of thyloquinone Squibb, a synthetic preparation (2-methyl-1, 4-naphthoquinone). Klotogen is available in gelatin capsules containing 1,000 Almquist units, and in oil, each cubic centimeter of which contains 1,250 Almquist units of vitamin K; each Almquist unit is equivalent to 37.5 Dam units. Thyloquinone is available in 1 mg. capsules containing 2,000 Ansbacher or 40,000 Dam units, and in oil solution, each cubic centimeter of which contains the same number of units as the capsule. Both preparations were put directly into the child's mouth by medicine dropper. With neither, regardless of the amount used, was there any evidence of toxicity or any other disturbance from its use.

FRANK HEMORRHAGIC DISEASE OF THE NEWBORN

Four cases of frank hemorrhagic disease were studied by the bedside test and treated with klotogen and one by the Boyce serum volume index, and treated with thyloquinone. The summarized histories follow:

CASE NO. 1

A negro female infant, born of a 15 year old primiparous mother, delivered by low forceps, weighed eight pounds four ounces at birth. Bleeding from the cord began on the first day of life. On the fourth day ecchymotic spots appeared over the entire body and a large hematoma was seen in the left cephalo-parietal region. On the fifth day profuse bleeding occurred for 10 minutes after venipuncture. Local applications of silver nitrate and the intramuscular injection of 20 c. c. of whole blood had had no perceptible effect on the hemorrhage, and on the sixth day the prothrombin concentration was too low to estimate. At this time klotogen (10 drops) was given every three hours, administration being continued for 10 days. Within 24 hours all bleeding had ceased, and on the seventeenth day of life the prothrombin concentration was 84 per cent. The child was discharged in good condition at the age of three weeks.

CASE NO. 2

A white female infant, born of a 25 year old mother (para I, gravida III) delivered by low cesarean section because of fetopelvic disproportion, weighed 10 pounds eight ounces at birth. Two days after birth the baby vomited blood and on the third day ecchymotic spots appeared over the body, the stools were tarry, and the prothrombin concentration was too low to calculate. A transfusion of 50 c. c. of whole blood had been without perceptible effect. At this time klotogen (10 drops) was given every three hours before each feeding, the administration being continued until the tenth day of life. Bleeding ceased entirely within 48 hours after the medication was begun. The prothrombin concentration was 16 per cent on the eighth day of life and 100 per cent on the eleventh day. The baby was discharged in excellent condition on the twelfth day.

CASE NO. 3

A colored female infant, born of a 25 year old mother (para IV, gravida V) delivered spontaneously, weighed six pounds at birth. Tarry stools were observed two days after birth, at which time the red blood cell count was 2,460,000 and the hemoglobin 66 per cent. The prothrombin concentration was too low to calculate. A transfusion of 45 c. c. was given on the second day, together with 60 c. c. of whole blood by intramuscular injection, and a second transfusion of 60 c. c. of whole blood was given on the third day. At this time klotogen (10 drops) was begun and was given every three hours for the next seven days. Bleeding stopped entirely on the fourth day. The prothrombin concentration was 100 per cent on the seventh and eighth days. The child was discharged in good condition on the twenty-second day of life.

CASE NO. 4

A colored female infant, born of a 17 year old primiparous mother, delivered by low forceps, weighed seven pounds three ounces at birth. Bleeding from the cord occurred on the fourth day and was treated by local application of silver nitrate and a compression bandage. On the fifth day ecchymotic spots appeared over the arms and body, and bleeding occurred from the nose and rectum. The bleeding time was 8 minutes, the coagulation time 9 1/2 minutes, and the prothrombin concentration too low to calculate. Fifteen cubic centimeters of whole blood was given intramuscularly, and klotogen (10 drops) was given every three hours for six days. Bleeding stopped within 24 hours of its administration. The prothrombin concentration was 25 per cent on the sixth day and 97 per cent on the seventh. The child was discharged in good condition on the eighth day.

CASE NO. 5

A colored male child, born of a 24 year old mother (para IV, gravida VII) delivered spontaneously, weighed five pounds three and a half ounces at birth. On the third day of life the child vomited blood. At this time the serum volume index was 0.50 and the clot extremely friable. Thyloquinone (10 drops) was begun immediately every three hours and was continued for the next four days. Bleeding did not recur. Two days after the hematemesis a resident, who for some reason had not secured the history of previous bleeding, clipped a frenulum under the child's tongue, a procedure which in such cases would ordinarily be attended by serious risk. There was no bleeding in this instance. The serum volume index on the seventh day of life was 0.56 and the clot fair; on the fourteenth day it was 0.72, and the clot was firm and well retracted. The child was discharged in good condition on this day.

COMMENT

It is not unreasonable to assume that in the last case the bleeding did not progress to the point to which it progressed in the four other cases because vitamin K was administered immediately, whereas its administration was delayed for from 24 to more than 100 hours in the other cases. The last case is also of interest for two other reasons: (1) It is the only instance in which no other type of therapy was used, and the control of the hemorrhagic tendency can thus be attributed to nothing but the specific therapy; (2) the clipping of the frenulum under the tongue, as has already been noted, subjected the child to an additional risk which was not present in any of the other cases.

SUMMARY AND CONCLUSIONS

1. The bleeding tendency in newborn infants has been studied by the Quick prothrombin time test, the Ziffren et al. bedside test and the Boyce serum volume index. In all, more than 450 single tests were made on 41 mothers and 111 children.

2. All tests showed that infants are born with lower than normal values, which fall still lower on the third day of life, but which reach the birth values or higher by the fifth day.

3. The prepartal administration of vitamin K to the mothers had no perceptible effects on the infant blood values. The administration of vitamin K directly to the children in 1 mg. doses practically eliminated the usual fall in values on the third day of life. When the vitamin was used in 2 mg. doses the values rose steadily from birth and approximated normal adult values on the fifth day of life.

4. The majority of the tests were made with the Boyce serum volume index which showed precisely the same trends as the other tests used, and is infinitely simpler to perform.

5. Five cases of frank hemorrhagic disease are reported, the bleeding in all of which was promptly and permanently checked by the use of vitamin K. None of these children had any vitamin K until after the bleeding began. The bleeding was least in the case in which vitamin K was administered as soon as it appeared, though this particular child was unwittingly subjected to the additional risk of a minor procedure

on the tongue two days after the initial hemorrhage.

6. Bleeding did not occur in any instance in which vitamin K was administered at birth and continued throughout the first five days of life.

7. The suggestion of Waddell and Guerry, that no surgical procedure be performed on any newborn infant without the prophylactic administration of vitamin K, is eminently sensible.

8. The present cost of vitamin K preparations makes their routine administration to newborn infants, at least in public practice, entirely impractical. With the reduction in cost which will undoubtedly be achieved soon, it would be a wise precaution to employ it routinely in all cases for the first several days of life, since there is still no way of determining at birth which children are likely to bleed.

9. It is not too much to say that the proper application of vitamin K therapy should reduce to negligible figures the mortality from the type of hemorrhagic disease of the newborn due to this specific deficiency.

ADDENDUM

After this article had been completed, another report on their work was published by Hellman and his associates at Johns Hopkins Hospital (Hellman, L. M., Moore, W. T., and Shettles, L. B.: Factors influencing plasma prothrombin in the newborn infant. III. A study of the vitamin K activity of various naphthohydroquinone derivatives, Bull. Johns Hopkins Hosp., 46:379, June, 1940). Their conclusions are added for the sake of completeness:

1. Small, unit-equivalent doses, 2-methyl-1, 4-naphthoquinone, 2-methyl-1, 4-naphthohydroquinone dipropionate, and 2-methyl-3-phytyl-1, 4 naphthoquinone, dissolved in oil are capable of raising the plasma prothrombin of the newborn infant when given by mouth to the mothers during labor.

2. In similar doses intravenous 2-methyl-1, 4-naphthohydroquinone-3-sodium sulfonate is shown to possess significant vitamin K activity.

3. On the contrary, under identical conditions, 2-methyl-1, 4-naphthoquinone in milk-sugar pills, and vitamin K concentrate, by mouth, and 2-methyl-1, 4-naphthohydroquinone-3-sodium sulfonate, intramuscularly, could not be shown to be effective in raising the plasma prothrombin levels of the newborn infants.

NOTE.—Our thanks are due to Drs. E. L. Levert and Bertha Wexler of the Pediatric Service of the Tulane University School of Medicine, who cooperated with us in several of the reported cases; to Dr. Frederick F. Boyce, who assisted us throughout the investigation with advice and suggestions; and to the Abbott Laboratories and E. R. Squibb and Sons, who supplied the materials with which the studies were carried out.

REFERENCES

1. Whipple, G. H.: Hemorrhagic disease—septicemia, melena neonatorum and hepatic cirrhosis, Arch. Int. Med., 9:365, 1912.
2. Quick, A. J., Stanley-Brown, M., and Bancroft, F. W.: A study of the coagulation defect in hemophilia and in jaundice, Am. J. M. Sci., 190:501, 1935.
3. Dam, H., and Schönheyder, F.: A deficiency disease in chicks resembling scurvy, Biochem. J., 28:1355, 1934.
4. Dam, H.: The antihemorrhagic vitamin of the chick, Biochem. J., 29:1273, 1935.
5. Greaves, J. D., and Schmidt, C. L. A.: Nature of the factor concerned in loss of blood coagulability of bile fistula rats, Proc. Soc. Exper. Biol. & Med., 37:43, 1937.
6. Brinkhous, K. M., Smith, H. P., and Warner, E. D.: Plasma prothrombin level in normal infancy and in hemorrhagic disease of newborn, Am. J. M. Sci., 193:475, 1937.
7. Quick, A. J., and Grossman, A. M.: Prothrombin concentration in newborn, Proc. Soc. Exper. Biol. & Med., 41:227, 1939.
8. Dam, H., Tage-Hansen, E., and Plum, P.: K-avitaminosis in infants as cause of hemorrhagic diathesis, Ugesk. f. laeger, 101:896, 1939.
9. Waddell, W. W., Jr., and Guerry, DuP., III.: Effect of vitamin K on the clotting time of the prothrombin and the blood with special reference to unnatural bleeding of the newly born, J. A. M. A., 112:2259, 1939.
10. Hellman, L. M., and Shettles, L. B.: Factors influencing plasma prothrombin in the newborn infant; prematurity and vitamin K, Bull. Johns Hopkins Hosp., 65:138, 1939.
11. Shettles, L. B., Delfs, E., and Hellman, L. M.: Factors influencing plasma prothrombin in the newborn infant. II. Antepartum and neonatal ingestion of vitamin K concentrate, Bull. Johns Hopkins Hosp., 65:419, 1939.
12. Owen, C. A., Hoffman, G. R., Ziffren, S. E., and Smith, H. P.: Blood coagulation during infancy, Proc. Soc. Exper. Biol. & Med., 41:181, 1939.
13. Leidenheimer, H., Jr., and Boyce, F. F.: Serum volume index studies in newborn children, Proc. Soc. Exper. Biol. & Med., 43:446, 1940.
14. Ziffren, S. E., Owen, C. A., Hoffman, G. R., and Smith, H. P.: Control of vitamin K therapy. Compensatory mechanisms at low prothrombin levels, Proc. Soc. Exper. Biol. & Med., 40:595, 1939.
15. Boyce, F. F.: The Rôle of the Liver in Surgery (Gross Prize Monograph), C. C. Thomas, Springfield, 1941.
16. Rush, A.: A comparison of the fibrinogen and prothrombin levels of maternal and cord blood at delivery, Surg. Gynec. & Obst., 70:922, 1940.
17. Bray, W. E., and Kelley, O. R.: Prothrombin studies, especially in the newborn, Am. J. Clin. Path., 10:154, 1940.

DISCUSSION

Dr. Frederick F. Boyce (New Orleans): So far as I know, Dr. Leidenheimer's study of hemorrhagic disease in the newborn is the first to be made from this particular part of the country. For that matter, only a very limited number of such studies are on record either here or abroad. In general, his data and results corroborate those of other observers.

Hemorrhagic disease of the newborn differs in an important respect from the similar diathesis in jaundice. Both are unquestionably due to a deficiency in the prothrombin content of the blood, which in turn is due to a deficient absorption of vitamin K. But in the jaundiced patient the deficient absorption is due to the absence of bile salts in the gastrointestinal tract. In the newborn child it is due to an actual absence of vitamin K.

It has been rather generally established that the level at which infants bleed is considerably lower than the level at which adults bleed, regardless of the test used to demonstrate the hemorrhagic diathesis. This statement holds for the serum volume index, which Dr. Leidenheimer has used in most of his cases.

Since the bleeding tendency in newborn infants is due to a vitamin K deficiency, the logical method of prophylaxis would seem to be the routine administration to all infants of some concentrated or synthetic preparation. This is not so simple as it seems, for the price of either type of preparation is still too high to make routine administration possible. A satisfactory alternative would be the testing of all newborn children for a possible bleeding tendency, with the immediate administration of vitamin K when the values fell within the range which previous experience has shown to be dangerous. There seems to be no reason for failure to administer vitamin K immediately to any child who bleeds, without waiting for tests or trying any other method of treatment. If the bleeding proves to be due to some other cause than vitamin K deficiency, as happens in a certain proportion of cases, the tentative administration will have done no harm. If it is proved to be due to this deficiency, the prompt administration may be lifesaving. The prompt control of the bleeding in Dr. Leidenheimer's fifth case, in which vitamin K was administered at the first sign of bleeding, as compared with the results in the other cases, in which other methods were tried first, makes this point apparent.

Dr. Leidenheimer has commented on his failure to influence the infant values by the maternal administration of vitamin K and the success of certain other observers by this method. The explanation may lie in variations in the thromboplastin used, or some other, less apparent factor may be the cause. For my own part, I do not see how the maternal administration of vitamin K could be expected to secure any but the most transient improvement in the child. If the present concept of prothrombin production and concentration is correct, there is no preformed storage of vitamin K in the body, and treatment of the mother could affect the child only so long as the child remained *in utero*. Once the cord is divided, only direct administration of vitamin K to the child could permanently raise the prothrombin of the blood.

FURTHER STUDIES OF THE CAUSES OF BLINDNESS IN LOUISIANA*†

H. F. BREWSTER, M. D.
NEW ORLEANS

Next to death, perhaps the greatest tragedy befalling a human being is blindness. Viewed in the other direction eyesight, next to life itself, is our most cherished possession. Yet, it is remarkable how uninformed and indifferent the great majority of people are concerning the eyes and their proper care. They seem not to realize that the eye is a complicated, delicate and highly specialized organ of the body, reacting to all body ailments and that it is afflicted by over three hundred diseases. They fail to realize that the eye is an inseparable organ of the body requiring the same medical skill and meticulous care as do the heart, lungs, kidneys, central nervous system, digestive apparatus and other tissue systems of the body.

This very lack of information, coupled with profound indifference on the part of both the medical profession and the public, can be held responsible for a great portion of the blindness in Louisiana and the nation. This statement can be readily understood when it is realized that a great number of the blind in our State have never consulted or had the services of an eye physician and surgeon. Nearly all, however, have bought numerous pairs of glasses with which to cover up their progressive organic diseases.

This study of the causes of blindness in Louisiana was first reported on in this journal in October 1938, at which time an analysis of 700 cases was presented, and a series of observations and recommendations set forth. Over eleven hundred cases have now been subjected to analysis. Percentages have been figured for all causes of blindness of 1 per cent or more. Those etiologic factors causing less than 1 per cent blindness are listed last. Conservatively estimated it can be stated that 73 per cent of this blindness could have and should be prevented.

---

*Read before the Orleans Parish Medical Society, May 13, 1940.

†First Report, New Orleans M. & S. J., 91:166, 1938.

CAUSES OF BLINDNESS AND PERCENTAGES

Syphilis	15.1
Glaucoma	10.9
Congenital diseases and defects	9.9
Lacerations and burns	4.9
Senility	4.3
Gonococcal infections	4.1
Hereditary diseases	4.0
Pyogenic infections in infants (non-gonococcal)	3.9
Gunshot wounds	3.3
Toxic poisoning	3.0
Consanguinity	2.0
Typhoid fever	1.7
Juvenile cataract	1.7
Meningitis	1.6
Trachoma	1.6
Diabetes	1.4
Not known	1.4
Infections undifferentiated	10.6
Secondary cataract	1.3
Injuries undifferentiated	1.1
Sinusitis	1.0
Infected teeth	1.0

The following conditions were responsible for less than 1 per cent: Pterygium, pemphigus, trichiasis, scarlet fever, smallpox, tuberculosis, pneumococcus, influenza, encephalitis, infections not specified, fireworks, industrial injuries, diseased tonsils, Banti's disease, malaria-quinine, gallbladder disease, brain abscess, brain tumors, toxic goiter, faulty diet, pellagra, anemia, nephritis, vascular disease, multiple sclerosis, toxemia of pregnancy.

It must be pointed out that in many cases the blindness resulted not from one, but from several causes often acting at the same time. An example would be a syphilitic having diabetes, foci of infection and subsisting on an improper diet. Another example would be a tuberculous patient with foci of infection, ulcerative colitis and anemia. In actual practice, private and clinical, innumerable combinations of etiologic factors are encountered and proper treatment must be just as variable. Often eye complications develop in the course of infectious diseases but are overlooked or considered lightly until the eye is either gravely damaged or even lost. Eye injuries are always serious but should invariably receive very special care in persons having some general debility already such as anemia, diabetes, thyroid dysfunction, foci of infection or other conditions.

CONCLUSIONS

The prevention of blindness and conservation of vision is primarily a task for the medical profession. However, the responsibility must be shared with other groups and organizations especially in the realm of public education concerning the eye and its proper care in health and disease.

TEN-YEAR SURVEY OF ANTILUETIC THERAPY AT THE EYE, EAR, NOSE AND THROAT HOSPITAL*

W. E. KITTREDGE, M. D.
NEW ORLEANS

This presentation is intended as a brief survey of the results obtained in the treatment of syphilis at the Eye, Ear, Nose and Throat Hospital since the inception of the antiluetic clinic ten years ago.

During this time 272 persons have applied for treatment. It is interesting to note that 48 per cent of that number have appeared in the last two years, showing a greater general awakening to the ever present possibility of syphilitic etiology for various common lesions and also a better system for the diagnosis of syphilis. In this connection it is interesting to note that 64 patients, or 23 per cent of the total, had no complaint at all and were diagnosed by routine Wassermann tests.

There were a total of 16 different types of lesions of the eye diagnosed as luetic, 11 of the nose, seven of the throat and two of the ear. Of these the five most common were:

Case	Per cent	No.
Optic atrophy	7	18
Keratitis	14	37
Pharyngitis	9	23
Cataract	6	16
Iritis	5	14
Total	41	108

---

*Read before the Orleans Parish Medical Society, May 13, 1940.

The total number of treatments given were: Arsenicals, 1,763; bismuth, 3,316; mercury (weeks) 709. It is an interesting and sad commentary on the present lack of control of syphilitics to note that 105 patients, or nearly 40 per cent of the total, received less than eight weeks of treatment. This is all the more important when it is considered that eight weeks of treatment has been established as the minimum amount with which any definite clinical improvement may hope to be obtained. Of the total patients treated only 14, or 5 per cent, received sufficient treatment to be classed as cured.

Of those patients receiving adequate or semi-adequate treatment, it was possible to arrive at the following grouping in regard to prognosis and results. Good results were obtained generally in cases of keratitis, iritis, iridocyclitis, corneal ulcers, uveitis, conjunctivitis, pharyngitis, ethmoiditis and facial paralysis. Results were poor in cases of glaucoma, optic atrophy, macular degeneration, gumma of the septum and sinusitis.

Fortunately, I am able to report that the number of adverse reactions to treatment were negligible. One case of arsenical dermatitis occurred but no other serious reaction was seen in any case. This good record, I think, is attributable to two factors: First, that preliminary courses of bismuth are usually given to these patients in order to begin treatment more or less gradually; second, that no excessive doses of arsenic are ever used, and for the past several years we have used mapharsen almost exclusively which enables us to provide adequate arsenical treatment with a minimum amount of actual arsenic administration.

ACUTE EUSTACHIAN TUBE OBSTRUCTION*

E. GARLAND WALLS, M. D.
New Orleans

The eustachian tube, in its normal healthy state, serves the important functions of maintaining atmospheric pressure in the middle ear and of allowing secretions to leave the middle ear cavity. The tube is about one and one-half inches long, extending from the anterior inferior portion of the middle ear medially, downward, and forward to its orifice on the lateral pharyngeal wall just above the level of the soft palate and behind the posterior end of the inferior nasal turbinate (concha). In infancy and childhood, the tube is shorter and is almost in a horizontal position. The lining epithelium is of the ciliated, columnar type and is continuous with the pharyngeal mucous membrane.

The pharyngeal orifice of the eustachian tube is bounded above and behind by a ridge, the eustachian cushion, which is formed by the projection of the cartilage of the tube. There are many lymph follicles in and about the orifice, and the adenoid is nearby when it is present. In its vulnerable position, the pharyngeal end of the tube is subjected to risk of infection by extension from the nose or throat or may be the site of reactionary swelling due to inflammation in the tonsils, pharynx, or nose. The swelling may cause obstruction at the pharyngeal orifice or at the narrow isthmus of the eustachian tube. It has been shown that the ciliary flow of mucous and other nasal secretions divides so as to avoid the eustachian tube orifice, but, in acute rhinitis and sinusitis, where the exudates are profuse, the mechanism is insufficient for its protection. A swollen adenoid very often may be the cause of closure of the eustachian tube orifice.

SYMPTOMS

The first symptom referable to the ear, noticed when the eustachian tube has been closed, is that the ear feels stopped up, and there is, perhaps, an impairment of hearing. When blocking is not complete and the tube allows air to enter the middle ear periodically, a popping or cracking noise is heard in the affected ear which is followed by a period of relief from the stopped-up feeling. This popping is noticed particularly after swallowing or forceful opening of the mouth which opens the eustachian tube orifice.

---

*Read before the Orleans Parish Medical Society, May 13, 1940.

If the tube remains closed, air within the middle ear is absorbed, and pressure is reduced below atmospheric pressure. The tympanic membrane is retracted, and the more serious effects of eustachian tube blocking begin to take place. A transudation of serum occurs, and any effort (swallowing) on the part of the patient to clear the ear is futile. This serum is a fertile culture medium, and, usually, pathogenic organisms from the nasopharynx and eustachian tube find their way to start an active infection in the middle ear. Ear pain may occur at any time during this chain of events; first, from inflammation of the tube itself, and, finally, from acute otitis media. Eustachian tube blocking is one of the most frequent causes of loss of hearing, and it is the most important because almost all cases can be cured. Hearing of all tones is affected in complete obstruction with the loss in the low tones most noticeable. It is noteworthy, however, that in partial or intermittent blocking, the very high tones (above 8,000 double vibrations) are the first to be affected.

TREATMENT

The treatment of this condition begins with the removal of the cause. Nasopharyngeal inflammation should be treated, and sinus infection cleared up. The upper air passages should be kept open by using vasoconstrictor drugs, and they should be kept free of secretions. If tonsillitis and adenoiditis are present, these parts should be treated preparatory to removal later. Lymphoid masses about the pharyngeal orifice may be treated by radiation if they persist after the acute stage subsides. Applications may be made under vision by using the nasopharyngoscope when necessary.

Daily pneumatic massage of the drum is helpful, especially in early cases in preventing progress of the middle ear pathology and in promoting the comfort of the patient. Inflation of the eustachian tube is to be avoided when acute inflammation is present in the nose or nasopharynx because of the obvious danger of forcing contaminated material into the middle ear.

Acute eustachian tube blocking without complications and with prompt treatment usually has an uneventful, complete recovery. Careful hearing tests, preferably with an audiometer, should be done before discharging the patient. Very often, there are losses at one or more tones which may be regained by gentle, periodic inflation of the tube, either by the Politzer method or by catheterization. Hearing losses not restored promptly may be permanent. The patient who has developed a serous or purulent otitis media must be taken care of as such and so should other complications.

The prevention of recurrences is important. Nasal infections or deformities are eliminated, and excess lymphoid tissue in the nasopharynx is removed or treated by radiation.

SUMMARY

1. The eustachian tube is important in the maintenance of air pressure and in preventing accumulation of secretions in the middle ear.

2. It is in a position that makes it vulnerable to inflammations and blocking of the nasopharynx.

3. Blocking of the tube is serious because (a) hearing loss will follow, and (b) middle ear infection is likely.

4. The treatment is, essentially, the removal of causes, followed by treatment of the tube and ears to get the hearing back to normal.

BIBLIOGRAPHY

Crowe, Samuel J.: Diagnosis and differential diagnosis of deafness, Arch. Otolaryng., 28:663, 1938.

Turner, A. Logan, and others (editors): Diseases of the Nose, Throat and Ear, Baltimore, William Wood and Co., 1936, pp. 258, 324-328.

THE USE OF PROSTIGMIN METHYLSULFATE IN DEAFNESS

A PRELIMINARY REPORT*

L. W. ALEXANDER, M. D.†
NEW ORLEANS

The addition of prostigmin to otolaryngology is an advance in therapy that is worthy of consideration. This drug has been used in other branches of medicine to stimulate peristalsis and overcome bladder atony, but it was not until May, 1939, when an article entitled "The Treatment of Deafness and Contiguous Nervous Disorders with Prostigmin" appeared in the Archives of Otolaryngology by Davis and Rommell, that this drug was used in the treatment of deafness. So far as I am aware no other authors have reported their observations in otolaryngology with prostigmin. This preliminary report prompted me to try prostigmin. In this paper I will attempt to give my results.

CHEMISTRY OF THE DRUG

Chemically prostigmin methylsulfate is the dimethyl-carbamic ester of m-oxyphenyl-trimethyl ammonium methylsulfate. It is a white, odorless, crystalline powder with a bitter taste, freely soluble in water and to a lesser degree in alcohol. It is a synthetic compound manufactured by Hoffman-La-Roche, Inc., and resembles physostigmin, but differing from this alkaloid chemically by its less complicated structure and its greater stability. Prostigmin bromide, for oral use, is the di-methyl-carbamic ester of m-oxyphenyl-trimethyl ammonium bromide. Pharmacologically, prostigmin is marked by the almost complete absence of cardiac by-effects.

ACTION OF PROSTIGMIN

The action of prostigmin in otology may come up for discussion. Davis and Rommell have brought out the fact that the muscles of the ear and face have a common embryologic origin and a common innervation. In cases of myasthenia if the muscles of the face are stimulated by prostigmin, the muscles of the ear are also stimulated. Prostigmin is a stimulant to the parasympathetic nervous system. In otology the internal carotid plexus must be considered to understand the action of prostigmin. It communicates by five branches with (a) abducens nerve, and (b) semilunar ganglion and gives off (c) the great deep petrosal and (d) the carotico-tympanic nerves. The deep petrosal nerve joins the greater superficial petrosal nerve from the geniculate ganglion of the facial, in the foramen lacerum. By their union the pterygoid nerve is formed, which after traversing the pterygoid canal, ends in the sphenopalatine ganglion. The carotico-tympanic nerves pass to the tympanic plexus. This plexus, formed by the carotico-tympanic nerves, the tympanic branch of the glossopharyngeal, and a twig from the geniculate ganglion of the facial nerve, is placed on the labyrinth wall of the tympanum. It supplies the mucous lining of the tympanum and the auditory tube, and the lesser superficial petrosal nerve passes from it to the otic ganglion. By giving prostigmin, the tympanic plexus that supplies the mucous lining of the tympanum and the auditory tube are stimulated.

From the above it will be seen that prostigmin is of value in cases where there is pathology in the tympanum and the auditory tube. The pathology may be an accumulation of mucous, desquamated cells, or other products that have arisen from an inflammatory process in the tympanum or eustachian tube. By stimulating the parasympathetic system with prostigmin, the tympanic cavity or eustachian tube is freed of any foreign matter.

Clinically I have found prostigmin to be of value in several types of conductive deafness. In cases of acute tubotympanitis, prostigmin hastens recovery. It does not supplant other treatment, but it is an adjunct to the present accepted treatment. Another type of conductive deafness is in cases that present the end stage of acute suppurative or non-suppurative otitis media, where there is present an accumulation of pathologic material in the tympanic cavity. Prostigmin hastens a return to normal hearing in this type of case along with other accepted treatment.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 23, 1940.

†From the Department of Otolaryngology, School of Medicine, Tulane University of Louisiana.

In chronic catarrhal otitis with or without tinnitus, there is another type of conductive deafness that is improved by prostigmin. This type of patient goes from physician to physician seeking some improvement in his hearing; any improvement is greatly appreciated by the patient. Likewise, the patient with the tinnitus is most grateful if you can help him. Prostigmin does improve the hearing and diminish the tinnitus in 50 per cent of the chronic catarrhal types of conductive deafness. Prostigmin is of no value in otosclerosis or nerve deafness.

In my series of 80 cases, 20 were cases of acute tubotympanitis, six were cases presenting the end stage of acute suppurative or non-suppurative otitis media, 44 were chronic catarrhal otitis media, five were cases of tinnitus alone, five were cases of facial neuralgia. The 20 patients with acute tubotympanitis were given 1 c. c. of 1-2000 solution of prostigmin methylsulfate every 48 hours, along with the usual accepted treatment. None of these patients required more than three doses. This treatment was used in several patients after the usual treatment had been used and the hearing had not improved. Prostigmin in these cases produced almost an immediate improvement in hearing, as well as the tinnitus. The six patients who presented the end stage of acute suppurative or non-suppurative otitis media, were given prostigmin and the hearing returned to normal after three doses, which were given at 48 hour intervals. Gentle politzerization and massage were also used along with local treatment of the nasal pharynx.

RESULTS OF TREATMENT

My results with the 44 cases of chronic catarrhal otitis media with or without tinnitus may be summarized as follows: Sixteen patients showed good recovery in hearing; 13 patients stated that their acuity of hearing was better, but audiograms failed to reveal any improvement; five persons with tinnitus were relieved with no improvement in hearing; the remaining ten patients showed no improvement. It was interesting to note in cases of bilateral chronic catarrhal otitis media where the hearing was only partly lost in one ear and almost completely lost in the other ear, that prostigmin produced an improvement in the good ear only.

These patients were given 1 c. c. of 1-2000 prostigmin methylsulfate twice a week, along with catheterization and massage. Two patients had a recurrence of tinnitus; one patient reported after a month and the other after two months with a return of the tinnitus. These two patients are still under treatment and have shown a definite improvement.

In the five cases of tinnitus with no loss of hearing, prostigmin changed the character of the tinnitus after the first injection. Three patients were completely relieved, and in the other two the tinnitus was lessened to such an extent that it was hardly noticed. These patients were given prostigmin twice a week and no other treatment.

Five cases of facial neuralgia were immediately relieved with prostigmin alone. These patients are now under observation and so far only one has had a recurrence and he was relieved by a single dose of prostigmin.

CONCLUSIONS

1. Prostigmin is a stimulant to the parasympathetic nervous system which supplies the mucous lining of the tympanum and auditory tube. It is of value in the following types of conductive deafness: (1) Acute tubotympanitis; (2) end stage of acute suppurative or non-suppurative otitis media, (3) chronic catarrhal otitis media with or without tinnitus.
2. Prostigmin should be used as an adjunct to other accepted treatments. Tablets of prostigmin bromide may be given three times a day.
3. Patients with acute pathology in the tympanum or eustachian tube, usually do not require more than three doses of prostigmin.

4. Patients with chronic catarrhal otitis media with or without tinnitus require several months of treatment, prostigmin being given twice a week.

5. Prostigmin has a definite value in cases of facial neuralgia.

6. No contraindications were found in any of my cases; two patients experienced slight nausea, which was relieved by eating.

7. The scientific rationale of this treatment may be questioned. Since the results have been better than treatments previously employed I recommend them for your consideration and study.

REFERENCES

1. Davis, T. C., and Rommel, J. C.: Treatment of deafness and contiguous nervous disorders with prostigmin; preliminary clinical report, Arch. Otolaryng., 29:751, 1939.

2. Aeschlimann, J. A., and Reinert, M. J.: Pharmacological action of some analogues of physostigmine, J. Pharmacol. & Exper. Therap., 43:413, 1931.

3. Berk, L.: Über diastolische Strophanthinwirkung am isolierten Froschherzen nach Vorbehandlung mit parasympathischen Giften, Arch. f. exper. Path. u. Pharmakol., 168:638, 1932.

4. Schweitzer, A., and Wright, S.: Anti-strychnine action of acetylcholine, prostigmin and related substances and of central vagus stimulation, J. Physiol., 90:310, 1937.

5. Swartz, E. O.: Cystitis—clinical consideration, J. Med., 16:366, 1935.

DISCUSSION

Dr. Charles L. Cox (New Orleans): Otolaryngologists for years have been criticized for the lack of advancement in the treatment for the hard of hearing. A patient beginning to get deaf had little, if any, prospect of having his deafness treated with any degree of success. Since the advent of sulfanilamide there has been a revival of interest and hope in chemotherapy for many conditions formerly believed incurable and beyond help.

Prostigmin methylsulfate has shown great possibilities in relieving deafness. My experience with the drug has been more or less limited, but I have been gratified by the results in most of my patients in whom it was used. Audiometric readings must be made before and after treatment so as to record the amount of improvement. Prostigmin alone is not enough. All existing sinusitis must be treated, and the eustachian tubes must be inflated periodically.

Dr. J. C. Howard (New Orleans): In the last six months, I have treated about forty cases of deafness with the use of prostigmin in the Hard of Hearing Clinic at the Eye, Ear, Nose and Throat Hospital. My results have been similar to those of Dr. Alexander.

I found in five cases of young women, with tenderness almost unbearable, immediate relief after a series of ten shots. However, we found that during the menstrual and before the menstrual period these head noises came back and we combated this with an increase of the number of injections the week prior to menstruation and gave another injection on the day of onset of menstruation. We have had very gratifying results and all reported absolute relief or a great deal of relief and there was no effect on menstruation in any way.

Dr. Alexander (In closing): We have a hard of hearing clinic conducted at the Eye, Ear, Nose and Throat Hospital, where we are comparing results with prostigmin methylsulfate and hope to give a final report later.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio
For one year: Lucien A. LeDoux, M. D., Vice-chairman.
H. W. Kostmayer, M. D. Secretary
For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF
John H. Musser, M. D. .... *Editor-in-Chief*
Willard R. Wirth, M. D. .... *Editor*
Edwin L. Zander, M. D. .... *Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D. .... *General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the eighteenth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

THE PHYSICAL DEFECTS IN THE DRAFTEES

In order that the physicians who are making examinations of the men who are appearing before the several Selective Service Boards might be acquainted with the results of the examinations that were made prior to the induction into service of men in 1917-18, the United States Public Health Service has published a summary of the defects per 1,000 total drafted men in this period. First it might be explained that roughly one-third of the men examined had defects which would be sufficiently serious to prevent their induction into service. However, minor defects were found in 52 per cent of these examinees. That they were only minor defects is shown by the fact that 40 per cent of them were called to arms.

Orthopedic impairments were the commonest of the defects that were discovered at this time. Some 213 per 1,000 of the men who were examined had this type of disability or defect. Eye troubles came next in frequency with 6.1 per cent, followed by hernia and cardiovascular renal disease in slightly over 5 per cent of all examined. Venereal disease claimed a fairly large number, 46 per 1,000, but other conditions dropped off rather abruptly, for example tuberculosis in all forms was found in only a little over 2.4 per cent of the men; defective teeth in approximately the same number, and of nervous and mental diseases exactly the same number. Such conditions as goiter, asthma, arthritis, varicose veins and the like were under 1 per cent.

A great deal of discussion has been raised as to the physical rehabilitation of these registrants who were disqualified from military service on the basis of one or another abnormal physical finding. It should be taken into account, however, that in the present draft undoubtedly there will be fewer men discovered who have heart disease, fewer men found who have tuberculosis and fewer men who have, for example, goiter; such conditions as far as these particular diseases are concerned have vastly improved during the last twenty-five years. The death rate from tuberculosis, for example, has dropped from 509 per 100,000 to 61 per 100,000 white males. Organic heart disease has diminished in frequency as well. It should also be pointed out that most of the defects are due to structural abnormalities which are classified in most instances as orthopedic impairments. There is not much, on the whole, that needs to be done for these men, nor is it necessary to do much about flat feet or bowlegs. In civilian life these men can function as well and as satisfactorily as men who do not have these abnormal conditions. Therefore, it is unlikely that many of these people need to be "rehabilitated" and because one-third of the men are being rejected is no reason for the socialistic-minded to put out loud calls for state medicine. Causes for rejection in most instances do not handicap a man in civilian life. The causes for rejection for the most part have no relation to the man's ability to make a livelihood. The army wants the best and only the best, and borderline instances are rejected although in all probability most of the rejected men could function equally as efficiently in the field or in the camp as the men accepted.

It has been pointed out that it is quite possible that rejections will be fewer than anticipated and the causes for rejection will be extremely minor conditions. It should be stressed that for years physicians and educators and others have been urging periodic health examinations, or collaborating in obtaining them. Certainly many minimal defects would have been picked up and would have been remedied had such examinations been as extensively employed as they should have been.

MILK

Milk is one of the most valuable foods which is available to man. It is an essential in the diet of children. Unfortunately throughout the State of Louisiana there are certain glaring faults with our milk and with the milk supply that should be corrected. Only by assuring the public that the quality and the pureness of the milk can be guaranteed will this invaluable food be more generally used. Milk sanitation is one of the important functions of the state authorities.

The value of milk products is greater than any other farm product in the United States. As a matter of fact cash income from the sale of milk is more than twice that of cotton and cotton seed, and almost three times that of corn. Of all the states in the south-central region, Louisiana farmers obtain less income from the sale of milk than any other state. Our farmers in 1939 received $6,627,000 for the sale of milk, whereas in Mississippi the income was over $10,000,000, in Tennessee over $15,000,000 and Oklahoma over $21,000,000. The chief explanation for this is the fact that Louisiana has the smallest number of cows of any of these states. This seems to be a short-sighted policy by the farmers. The value of the cows themselves is very much less than other south-central states.

Louisiana produced 292,000,000 quarts, whereas Mississippi produced more than twice that amount. The milk production per cow averaged slightly over 1,000 quarts per year per cow, whereas in Oklahoma figures were 1,684 quarts and in some states, California for example, the figures were over 3,000. Evidently farmers not only are not raising enough cows but they are not feeding them properly. In the production of butter, Louisiana is so low that it cannot be compared to most of the states in the Union. The same thing applies to cheese, 334,000 pounds produced in Louisiana as contrasted with 2,000,000 pounds in Oregon and 284,000,000 in Wisconsin.

As it is true that milk is a farm product for which the farmer receives a greater share of the consumer's dollar than practically any other farm product, the farmer should be encouraged by the physician to produce more milk from better cows. The reasons for this procedure are obvious: First, in order to increase the farmer's income so that he might have more to spend, and secondly in order that this most valuable of foods should be produced locally where its quality can have proper sanitary supervision and where the physician is assured of its safety so that he can be more insistent than ever on his child clientele imbibing large quantities of the lacteal fluid.

SULFONAMIDE DRUGS

The last issue of the Journal of the American Medical Association which appeared in the month of January (Vol. 116, January 25, 1941) had a series of articles on the sulfonamide compounds. As a matter of fact, practically the entire issue was devoted to this subject. As some of the articles had to do with rather unusual types of cases, and some rather rare complications, it might be well to point out the salient features of these presentations.

The first paper had to do with the treatment of pneumonia in infancy and childhood, using in one group of children sulfathiazole and in the other sulfapyridine. The study showed that sulfathiazole is just as effective as sulfapyridine. It might be mentioned that sulfathiazole has certain advantages over sulfapyridine which, if the two drugs are equally effective, would make it the drug of choice. Friedberg, in the next paper, gives an account of two patients with lobar pneumonia who had leukopenia; he mentions that leukopenia does not contraindicate the use of sulfapyridine, on the contrary it definitely indicates it as such cases are severe with a high mortality. In these instances the improvement was prompt and the leukocyte count rapidly became elevated. A San Francisco group called attention to the value of sulfanilamide in the treatment of actinomycosis. They cured three patients with this drug plus iodide and x-ray therapy.

The treatment of gonococcic infection with sulfanilamide has been equivocal in the various reports that have been published. Van Slyke, Wolcott and Mahoney deal with 300 cases of gonococcic infection treated with sulfapyridine, curing 85 per cent of the patients who had not previously had the drug and 70 per cent of those who had not been benefited by sulfanilamide. They say that sulfapyridine therapy should not be continued for longer than ten days and it "appears applicable to the comprehensive treatment needs of the disease." The treatment of pericarditis is usually unsuccessful. Nathanson finds that sulfanilamide and sulfathiazole diffuse freely in the pericardium and that these drugs are indicated when there is a pericarditis due to any one of the coccal organisms. The next paper is likewise an experimental study having to do with the pharmacology of sulfapyridine and sulfathiazole. This is of practical value because the authors point out that the sodium salts of these two drugs are absorbed more readily than the free acids and that if alkali in the form of bicarbonate of soda, or heavy magnesium, is given at the same time, the drugs are absorbed more rapidly from the gastrointestinal tract.

The succeeding paper has to do with the present status of the treatment of subacute bacterial endocarditis. The two New York contributors recount that in 200 cases of this condition due to the *Streptococcus viridans,* recovery occurred in 6.0 per cent in the patients to whom sulfonamide drugs were given; in 43 patients treated with these drugs and heparin the recovery was 11.5 per cent, in 24 patients treated by chemotherapy and hyperthermia recovery was 16.0 per cent, while in 21 patients treated by chemotherapy and hyperthermia induced by typhoid vaccine five recovered, or 25 per cent. Heparin therapy has been proved to be of value by others in the treatment of this disease. The blood stream should be sterilized with the chemicals and then the heparin should be started. Another paper on the same subject deals more fully with artificial hyperpyrexia plus chemotherapy. These authors point out that the effectiveness of the sulfonamide drugs is enhanced when there are high elevations of temperature.

A clinical report, having to do with recurrent pneumococcic meningitis treated with sulfapyridine, is presented by Craddock and Bowers. Their results were a cure. Sadusk and Nielson likewise effected a cure in a patient who had meningitis, staphylococcic in type, to whom sulfathiazole was given. The last paper in the scientific section has to do with the incidence of hematuria in patients treated with sulfonamide preparations. This complication occurred in 14.8 per cent of those treated with sulfathiazole and 10.7 per cent in those taking sulfapyridine.

Lastly, there is a report from the Council on Pharmacy and Chemistry on sulfathiazole which should be read by every one who administers this drug. This account has to do with the pharmacology of sulfathiazole, with the toxicity and lastly with the dosage. It is a splendid summary in every respect.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

J. T. NIX CLINIC

New Orleans

At the meeting held in February, Dr. James T. Nix, Jr., presented the following paper:

THE COLLODION SPRAY IN THE PREPARATION OF THE OPERATIVE FIELD

In the surgical scene, the skin alone defies sterilization. Micro-organisms float forth from its pores in a continual stream of sudoriferous and sebaceous fluid. The hands of the operating team are sheathed in rubber; the operative site receives no such mechanical protection. Ordinary preoperative preparation offers, at best, a relative sterility.

To circumvent the possibility of contamination, many forms of mechanical protection of the skin have been advocated: (1) Murphy's rubber dam; (2) liquid rubber; and (3) skin varnish.

The above preparations are opaque, obscure the operative site, and require elaborate, expensive and unwieldy equipment. They have never come into general use.

The sterile collodion spray or sheet of sterile cellophane, obviates the above difficulties and, in addition, presents the following advantages: (1) transparency; (2) ease of application; and (3) ease of removal.

An ordinary atomizer sprays the collodion, and thus furnishes a smooth sterile protective coating at the operative site. The rapid preparation of emergency surgery would emphasize its advantages.

This article is preliminary; a more complete study will follow further investigation.

TOURO INFIRMARY

New Orleans

A meeting of the Medical Staff was held on January 14, 1941.

The Clinico-pathologic Conference consisted of case reports. Six cases which represented various forms of heart disease were presented by Dr. Colvin and discussed by Drs. Wirth and Eshleman.

Following the Clinico-pathologic Conference, a presentation on rat bite fever was made by Dr. Charles Eshleman as follows: Rat bite fever is widespread, but exists chiefly in Japan, where it is said that about 3 per cent of the rats are infected. The organism is *Spirillum minus* described by H. V. Carter in 1887. Futaki and his co-workers in Japan in 1915 described the same organism and called it *Spirocheta morsus muris*. The former is the accepted name. Schottmueller, Blake and Tuminello, between 1914 and 1917, isolated a streptothrix from the lesion in cases of infection following a rat bite, but Col. Charles F. Craig warns against the possible error of confusing this condition and the organism with true rat bite fever.

The incubation period is one to six weeks. Usually the person is bitten by a rat at night during sleep. The wound heals; several weeks later the site of the bite becomes swollen, red and painful and a lesion develops very much like that seen following smallpox vaccination. Headache, severe chills, high fever and prostration occur, and lymphangitis and lymphadenitis in the region of the bite. Often an entire extremity becomes swollen, indurated and edematous. In a few days to one week, the high fever drops to normal and a period of remission occurs during which the patient feels quite well. After an interval of usually three to seven days, a sudden recurrence of chills and fever takes place. The patient may have six to 12 such paroxysms; the disease lasts several months if untreated. A maculo-papular eruption of the measles type often occurs during the first or second paroxysm. There is usually a leukocytosis of 10,000 to 20,000. The organism is rarely found in the blood stream, but can be demonstrated in scrapings from the initial lesion and in the material aspirated from inflamed lymph glands. The Wassermann is said to be positive in about 50 per cent of the cases. Rat bite fever was formerly rare in this country, but is becoming increasingly common.

We are greatly indebted to Dr. Rudolph Matas of this hospital who showed to this Staff about 1924, what was I think the first recognized case in this community. A most thorough and detailed description of the case and the disease was demonstrated. The case was later reported in the literature by Drs. Lanford and Lawson. Our hospital records show six cases have been admitted to Touro from 1924 to 1941 including Dr. Matas' original case and the one I am reporting tonight.

My patient was admitted recently, several weeks after having been bitten by a rat. She was partially asleep, but heard the rat scamper away. The lesion was red and swollen and tender on the outer, anterior surface of the left arm, near the bend of the elbow. The arm above this point was greatly swollen as far as the shoulder and there was marked tenderness and swelling of the glands in the axilla. Her chills and high spikes of temperature had developed about four weeks after being bitten and the lesion on the arm had developed with the fever. Scrapings from the lesion showing the organism will be shown you by Dr. Colvin. The blood culture was negative. No very definite skin eruption was present. She remained in the hospital about a week and became free of fever without internal treatment, and it being during Christmas week, she was allowed to go home, but about 10 days later returned with her second bout of high fever and chills. She has had two doses of neoarsphenamine recently and you see by the chart that her fever has been promptly controlled and remained normal for the past several weeks. She should remain well under this treatment.

Dr. Howles stated that rat bite fever was used instead of malarial infections, in treating syphilitic conditions, but that the organism was hard to grow. It was more easily controlled in the human body than malarial infection, which was an advantage. The rash is atypical and may resemble any number of other rashes, drug rash, toxic rash and secondary syphilitic rash.

Dr. Holbrook had treated one case of syphilis with sodoku. However, with the intervention of fever cabinets, it is useless to use these infections for hyperpyrexia.

Dr. Charles J. Bloom stated he had two cases in 1930. He reported that in 1933, seventy cases had been reported in the United States, which represented 23 states and Canada. The mortality was 11.1 per cent.

Dr. W. Rogers Brewster stated he had seen three cases of rat bite fever; one case was treated as an acute abscess, and the swollen lesion was incised, which of course, did not lead to a speedy recovery. He stated salvarsan readily controlled the cases.

This concluded the scientific part of the meeting.

Drs. Collins and Wirth were elected to the Executive Committee from the Staff at large.

It was moved and passed by the Staff that a committee be appointed to erect a tablet in memory of Dr. J. A. Lanford.

The regular monthly meeting of the Medical Staff of Touro Infirmary was held Wednesday, February 12. The program consisted of a clinicopathologic conference conducted by Dr. Harvey Colvin; three papers were presented, the first by Dr. Sidney Copland on bilateral double inguinal hernia, the second was some case reports on beriberi heart by Dr. Allan Eustis, and the third portion of the scientific program was a paper by Dr. John C. Weed on double ovarian malignancy following irradiation for carcinoma of the cervix.

David R. Womack, M. D., Sec.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

March 3. Orleans Parish Medical Society Board of Directors, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
New Orleans Graduate Medical Assembly.

March 4. Eye, Ear, Nose and Throat Staff, 8 p. m.
New Orleans Graduate Medical Assembly.

March 5. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.
New Orleans Graduate Medical Assembly.

March 6. Joint meeting Orleans Parish Medical Society with the New Orleans Graduate Medical Assembly, 8 p. m.
Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 11. Eye, Ear, Nose and Throat Society, 8 p. m.

March 12. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Woman's Auxiliary to the Orleans Parish Medical Society, Orleans Club, 3 p. m.

March 17. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.

March 18. Charity Hospital Medical Staff, 8 p. m.

March 19. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
The Orleans Tuberculosis Hospital Staff, 8 p. m.

March 20. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 21. I. C. R. R. Hospital Staff, 12 noon.
New Orleans Dispensary for Women and Children Staff, 8 p. m.

March 24. Scientific Meeting Orleans Parish Medical Society, 8 p. m.

March 25. Baptist Hospital Staff, 8 p. m.

March 26. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.

March 27. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 28. L. S. U. Faculty Club, 8 p. m.

During the month of February the Society held one regular scientific meeting, at which the following program was presented:

1. Case Report: Primary Carcinoma of the Liver
By Dr. Samuel H. Colvin, Jr.
2. Symposium on Water Balance:
   a. Parenteral Fluid Therapy
   By Dr. Samuel B. Nadler
   b. Blood Volume as Modified by Disease
   By Dr. Roy H. Turner
   c. Therapeutic Problems in Water Balance from the Viewpoint of the Surgeon
   By Dr. Urban Maes and
   (by invitation) Dr. Harry A. Davis

TREASURER'S REPORT

Bank Balance, December 31, 1940	$3,701.23
January Credits	3,785.87
Total Credits	$7,487.10
January Expenditures	1,976.44
Actual Book Balance, January 31, 1941	$5,510.66

NEWS ITEMS

Drs. C. Grenes Cole, Daniel N. Silverman, P. T. Talbot, and Edwin L. Zander attended the reorganization meeting of the Bienville Parish Medical Society at Ringgold, December 17. Dr. Silverman presented a paper on "Common Errors in Gastric Diagnosis"; Dr. Zander spoke on "Uterine Cervix—Its Diseases and Their Treatment."

Dr. Charles C. Bass presented a paper entitled "Further Observations on the Specific Cause and the Nature of Quail Disease or Ulcerative Enteritis of Quail" at a meeting of the Southern Section of the Society for Experimental Biology and Medicine, December 20. Dr. Albert E. Casey spoke at the same meeting on "Diurnal Variation of the Blood Leukocytes in Normal Rabbits."

Dr. Donovan C. Browne was recently elected vice-chairman of the Gastro-enterologic Section of the Southern Medical Association.

Drs. W. C. Rivenbark and M. Lyon Stadiem attended the meeting of the St. Mary Parish Medical Society at Franklin, December 17. Dr. Rivenbark presented a paper on "Diarrhea in Infancy and Childhood"; Dr. Stadiem spoke on "Office Endocrinology."

Dr. Alton Ochsner read a paper on "Thrombophlebitis and Phlebothrombosis" before the West Texas Post-Graduate Medical Assembly in Abilene, December 20.

Dr. Edwin L. Zander presented a paper on "Office Gynecology" at the Fifth District Medical Society Meeting at Monroe, December 18. At the same meeting Dr. Daniel N. Silverman spoke on "Plasma Treatment in Gastrointestinal Diseases."

Dr. E. Z. Browne was elected president of the Stars and Bars Chapter of Alpha Omega Alpha, national honorary medical fraternity, at a meeting of this organization on January 10. Other officers elected were: Dr. W. P. Gardiner, president-elect; Dr. Joseph N. Ané, councilor; and Dr. Michael DeBakey, secretary-treasurer.

Dr. Theodore F. Kirn was installed as president of the staff of Mercy Hospital to succeed Dr. R. A. Oriol at a meeting of this group on January 9. Other officers inducted were: Dr. E. J. Richard, vice-president; Dr. N. J. Tessitore, secretary; and Dr. Clifford J. Vedrenne, treasurer. Drs. Charles Gelbke and R. A. Oriol were elected additional members of the board of directors.

Dr. Clarence P. May was recently appointed senior associate in the Department of Neurology at Touro Infirmary.

Dr. Walter J. Otis attended a meeting of the Military Mobilization Committee of the American Psychiatric Association in New York City, December 20-21. Dr. Otis also read a paper on "Diseases of the Basal Ganglia" before the twenty-first annual meeting of the Association for Research in Nervous and Mental Diseases in New York, December 20-21.

Dr. Henry W. E. Walther was elected president of the Friends of the Howard-Tilton Memorial Library of Tulane University of Louisiana at their organization meeting held January 10.

Dr. Julian Graubrath has been appointed pediatrician of the City Board of Health to succeed the late Dr. Frank Kinberger.

Edwin L. Zander, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

COMPONENT SOCIETY OFFICERS 1941

BOSSIER PARISH

President: Dr. D. C. McCuller, Bossier
Vice-President: Dr. W. F. Bell, Plain Dealing
Secretary-Treasurer: Dr. J. B. Hall, Benton

ST. TAMMANY PARISH

President: Dr. J. K. Griffith, Slidell
Vice-President: Dr. W. L. Stevenson, Covington
Secretary-Treasurer: Dr. H. E. Gautreaux, Covington

THIRD DISTRICT

President: Dr. J. J. Burdin, Lafayette
Vice-President: Dr. Henry Voorhies, Lafayette
Secretary-Treasurer: Dr. E. E. Guilbeau, Jr., Lafayette

ST. TAMMANY PARISH MEDICAL SOCIETY

A meeting of the St. Tammany Parish Medical Society was held at the Southern Hotel in Covington on Friday, January 31, at 8 p. m.

In the absence of the outgoing president and outgoing secretary, upon motion unanimously passed, Dr. F. F. Young was named acting president and Dr. H. E. Gautreaux, acting secretary. The minutes of the previous meeting were read and unanimously adopted. The scientific program was dispensed with due to the absence of the two essayists, and the election of officers for 1941 followed.

Our ex-Congressman, Dr. J. K. Griffith, of Slidell, who has been a charter member of the Society for twenty-eight years and who had been president several times previously, was unanimously elected president; Dr. Wm. L. Stevenson, vice-president; Dr. H. E. Gautreaux, secretary, and Dr. Roy Carl Young was named delegate to the State Medical Society with Dr. F. R. Singleton, of Slidell, alternate.

The next meeting will be held the second Wednesday in March for installation of the new officers.

NEW APPOINTMENTS AT L. S. U.

Dr. Chester Arthur Stewart, pediatrician and authority on childhood tuberculosis, has been appointed Professor and Head of the Department of Pediatrics in the Louisiana State University School of Medicine, effective July 1, 1941.

Dr. Stewart is a native of Missouri and received his A. B. degree from the University of Missouri in 1914, where he completed the first two years of the medical course. He transferred to the University of Minnesota where he received a Master's degree in Anatomy in 1915, a Ph.D. degree in Anatomy in 1917, and an M.D. in 1919. In 1921, he received a Ph.D. in Pediatrics. From 1914 to 1917, he served as Instructor in the Department of Anatomy at the University of Minnesota School of Medicine and, from 1917 to 1919, as Instructor in Pathology in the same institution. In 1920-21, he was a fellow in Pediatrics at the University of Minnesota. He was promoted to the position of Assistant Professor of Pediatrics in 1922 and is at present Clinical Professor of Pediatrics and Director of the Out-patient Department at the University of Minnesota. This is a part-time position and he takes care of a large pediatric practice as well.

Dr. Stewart is a member of the American Academy of Pediatrics, the American Medical Association, the National Tuberculosis Association, and the Northwestern Pediatric Society. In 1937, he represented the National Tuberculosis Association and the American Academy of Pediatrics at the Fourth International Congress of Pediatricians in Rome.

Several other appointments in the School of Medicine have been announced. They are Dr. Charles A. Bahn, named part-time Professor of Ophthalmology; Dr. Isidore Cohn, Professor of Surgery, part-time; Dr. Samuel Karlin, part-time Clinical Assistant in Surgery; Dr. E. R. Bowie, part-time Clinical Professor of Radiology and Director of the Department of Radiology; and Dr. Sam Levi, Lecturer in Radiology, also on a part-time basis. Dr. Fred King Vaughan was promoted to the position of part-time Assistant Professor of Obstetrics and Gynecology.

THE AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians has arranged a series of postgraduate lectures, demonstrations and clinics at various centers throughout the United States. Ten of these courses will be given in all. Three will take place during February and will be for a duration of two weeks. These will be held respectively in St. Louis, New York City, and Rochester, Minnesota. Pre-meeting courses, coming just before the annual meeting, will be held April 21-25, and will be of varying duration from three weeks to one week. The centers for these courses will be Boston, Ann Arbor, Columbus, Ohio, Philadelphia and Washington. Courses are arranged primarily for Fellows and Associates of the College but will be open to others who are interested in internal medicine. The fee for the course is $20 for each week. Further information may be obtained from E. R. Loveland, executive-secretary, 4200 Pine Street, Philadelphia, Pennsylvania.

Applications for examinations for the position of Senior Medical Officer, $4,600 a year, Medical Officer, $3,800 a year, and Associate Medical Officer, $3,200 a year, in the Public Health Service, Federal Security Agency; Food and Drug Administration, Federal Security Agency; Veterans' Administration, Civil Aeronautics Administration, Department of Commerce; and Indian Service, Department of the Interior, must be filed with the United States Civil Service Commission, Washington, D. C.

NEW BOARD OF HEALTH

The new Board of Health met in the office of the State Health Department on Friday, February 7, with the following members present: Dr. J. E. Knighton, of Shreveport; Mrs. C. R. Cline, of Lake Charles; Mr. V. C. Cupp, of Ruston; Dr. E. B. Vickery, of New Orleans; Mr. A. Bruce Mouton, of Maurice; Dr. L. J. Schoeny, of New Orleans; Mr. Monte M. Lemann, of New Orleans. The other member of the Board, Dr. King Rand of Alexandria, was unable to be present. The new members elected Dr. Vickery chairman, Dr. Knighton vice-chairman, and Dr. Schoeny secretary. The Board was given a complete and detailed picture of the workings of the State Board of Health and then passed on certain matters of administrative importance. The Board plans to meet four times a year, on the second Friday in January, April, July, and October.

A. M. A. LOAN COLLECTION

The American Medical Association has a large collection of hygiene material. There are collections available on 82 topics and with these go a speaker's outline. A collection may be borrowed for a ten day period without cost. Any physician having to talk before a group of lay individuals on such subjects as the family medicine chest, first-aid, growing old gracefully, infantile paralysis, menstruation and the menopause, narcotics, to select a few of the subjects in the collection, could make use of this material.

The complete list of the subjects is on file in the Journal office.

THE SOUTHEASTERN SURGICAL CONGRESS

This Congress will be held in Richmond, Virginia, March 10-12, with headquarters at the Hotel John Marshall. A most interesting program has been arranged for this meeting which will be presided over by Dr. Irvin Abell. The speakers come not only from the South but also from the North and West. The C. Jeff Miller Lecture will be delivered by Dr. F. H. Lahey, president of the American Medical Association. The title of his address will be "The Surgical Treatment of Gastric, Duodenal and Jejunal Lesions."

1941 JOHN PHILLIPS MEMORIAL AWARD

On the recommendation of the Committee on Fellowships and Awards, the Board of Regents of the American College of Physicians, by unanimous resolution, has voted that the John Phillips Memorial Medal for 1941 be awarded to Dr. William Christopher Stadie, Associate Professor of Research Medicine at the University of Pennsylvania, Philadelphia, for his significant chemistry of hemoglobin, and more especially for his recent studies on the subject of fat metabolism in diabetes mellitus.

This award was established by the College, October 27, 1929, to be given periodically for some outstanding piece of work in internal medicine. Internal medicine in this instance is interpreted to include not only clinical science, but all of those subjects which have a direct bearing upon the advancement of clinical science. The work must have been done in whole or in part in the United States or in Canada.

Nominations for the award are made to the Committee on Fellowships and Awards of the American College of Physicians. The recipient must file with the College a written account of his work, and present his results as a paper before the next annual session, at which time the award of a bronze medal is made by the president of the College.

NEWS ITEMS

Acting Governor Dr. Marc M. Mouton has announced the appointment of Dr. Leon J. Menville as a member of the State Board of Medical Examiners. Dr. Menville did serve for many years on this Board and is a well qualified man to succeed Dr. C. Grenes Cole who is retiring from the Board.

Dr. Mouton announced also the appointment of Dr. C. Walter Mattingly as a member of the State Nurses Board of Examiners to succeed Dr. M. H. Foster, of Alexandria, who is now the director of the hospital at Pineville.

At a meeting of the Rapides Medical Society held February 3, the organization practically unanimously endorsed the resolution presented by Dr. Barber urging the Mayor and the City Council to assist in establishing an Alexandria-Rapides Parish Health Unit.

DR. S. F. MIOTON

Dr. S. F. Mioton was killed accidentally by being hit by an automobile Sunday, February 9, Dr. Mioton, a graduate of Tulane University, at one time was assistant coroner of Orleans Parish.

MEDICAL CARE

A new journal, published under the auspices of the Bureau of Research in Medical Economics and called *Medical Care,* will shortly make its appearance. The advance notice of its publication calls attention to several articles: One concerns the care of air raid victims; another by Dr. Nathan Van Etten is entitled "Preparedness through Fitness." Still another is on the cost of physicians' services under a voluntary health insurance plan, by Helen Hershfield Avnet of the Group Health Cooperative, New York.

There is a group of forty-five editorial advisors for this new journal.

The U. S. P. H. S. announces a new department of the National Institute of Health to be known as the Division of Chemotherapy under the direction of Surgeon W. H. Sebrell who will have associated with him Dr. Harris Isbell. This division is set up for the purpose of facilitating research in the new sulfanilamide products and new synthetic drugs with anti-malarial properties, and to extend the work relating to opium and morphine derivatives. The research work on nutritional problems will still be continued.

The attention of the medical professsion is directed to the appearance of a special issue of Harofe Haivri (The Hebrew Medical Journal), a semi-annual publication, edited by Dr. Moses Einhorn. This volume commemorates the thirteenth anniversary of this journal and is dedicated to Prof. Sigmund Freud.

The founders had faith in the vitality and growth of modern Hebrew and foresaw that a Hebrew medical publication would be of inestimable value in the development and advancement of Hebrew medical literature; also, it has proved to be of particular service to the medical department of the Hebrew University in Jerusalem.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Bureau of Epidemiology of the Louisiana State Board of Health for the week ending January 18, the third week of the year, showed that influenza was by far the most important disease numerically with 2,164 cases listed. Other diseases in numbers greater than ten included 112 cases of syphilis, 58 of pneumonia, 28 of pulmonary tuberculosis, 20 of cancer, 12 of gonorrhea, and 11 of typhoid fever. During this week there were two cases of poliomyelitis, one from Bossier and one from Rapides; there was one case of typhus fever, two of tularemia, and one of undulant fever. Four of the typhoid fever cases came from East Baton Rouge Parish. The influenza epidemic was decidedly on the wane according to the statistics reported for the week ending January 25, 660 cases being reported, followed by 236 of syphilis, 72 of pneumonia, 38 of hookworm, 30 of gonorrhea, 27 of pulmonary tuberculosis, 11 each of cancer and chickenpox, and 10 of scarlet fever. Tensas Parish reported two cases of poliomyelitis this week. For the fifth week of the year, which closed February 1, there was another marked drop in the influenza cases, there being only 308 reported for this week. However, the 72 pneumonia cases reported was up to double the five year average for this particular week. Other diseases reported in double figures included 99 cases of syphilis, 41 of gonorrhea, 25 of pulmonary tuberculosis, 16 of hookworm infestation, 14 of septic sore throat, and 13 of cancer. In this week a case of poliomyelitis was discovered in Claiborne and two cases of typhus fever in Orleans Parish and three of tularemia. For the week ending February 8, the sixth week of the year, only 218 cases of influenza were reported, whereas there were 356 cases of syphilis. This latter disease obtained this week its usual position at the head of the list. There were only five diseases in addition to these two which appeared in figures greater than ten, including 81 cases of hookworm, 39 of pneumonia, 26 of gonorrhea, 17 of pulmonary tuberculosis, and 15 of cancer. Two cases of typhus fever were discovered this week in Ascension and Avoyelles, and, strange to say, two cases of smallpox, one each in Caddo and St. Tammany.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, reports that for the week ending January 11, there were 162 deaths in the City of New Orleans, divided 111 white, 51 negro, and 11 infants. This is a remarkably low incidence of death in the city considering the many hundreds of influenza cases which were prevalent at that time. This indicates quite definitely that the epidemic was of minor importance in so far as severity and morbidity are concerned. In the week of January 18, 192 deaths were listed, divided racially 112 white and 80 negro. Fourteen were in children under one year of age, practically three-quarters of which were negro babies. For the week ending January 25, 187 of the citizenry of New Orleans expired; of these, 130 were in the white and 57 in the negro races. Fifteen of the deaths were in children under one year of age.

In spite of the epidemic of influenza which was prevalent throughout the state in the month of January, the death rate remained under the three year average for the corresponding weeks of the month. For the next week, terminating February 1, 1941, of the 166 reported deaths, 13 were in children under one year of age and the racial distribution was 99 white and 67 negro.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

Subscribe to the *Bulletin*, the official publication of the Woman's Auxiliary to the American Medical Association; issued quarterly, $1 a year. Send subscriptions to Mrs. H. E. Christenberry, Highland Drive, Knoxville, Tenn., or the State Bulletin Chairman, Mrs. Jules M. Davidson, 5133 St. Charles Avenue, New Orleans.

PUBLIC RELATIONS

I have the pleasure and privilege of serving as Public Relations Chairman with Mrs. Roy Carl Young's administration this year, and I am writing this article to urge all parish presidents and public relations chairmen to put forth an effort to accomplish something worthwhile in this very important phase of our work. If you have not already appointed a Public Relations Chairman, please appoint one at your next meeting in order that she may have time to send in a report of any activity before the April meeting in Shreveport.

As we all know, Public Relations Committees are simply to create good will for an organization and build for the public a correctly informed opinion of our aims. I have prepared and mailed an outline or questionnaire for each chairman in order that she may keep an accurate record of all work for public relations and add anything I have omitted.

With the National Defense Program in full swing the medical profession has a better opportunity than ever before to awaken the masses to the unselfish work done by our doctors. Also, to make clear its vast possibilities. Thousands of doctors are doing active military service while countless others are serving on draft and service boards at home, thus causing the medical profession to contribute its part to patriotism in a big way.

Thanking each and everyone for any interest or cooperation with me on this committee,

Sincerely yours,
Mrs. John David Frazar,
Public Relations Chairman.

NEWS OF LOCAL AUXILIARIES

CADDO PARISH

The Woman's Auxiliary to the Shreveport Medical Society entertained at a Christmas dinner party at the Shrine Club, which was attended by a large group of doctors and their wives.

The reception room was decorated with greens and candles, and in the banquet room the large E-shaped table was appointed in a red and white scheme, carrying out the theme of carnations in the snow. In the center of each table was a large mound of cotton snow from which extended an arrangement of red carnations, and tall red tapers carried out the color scheme further.

Mrs. J. M. Gorton served as mistress of ceremonies and presented a Dr. I. Q. program, Christmas carols, and the Virginia Reel.

SECOND DISTRICT

The regular monthly meeting of the Second District Medical Society was held at the home of Mrs. J. J. Massony in Westwego on January 21 with Mrs. J. Earle Clayton presiding.

Mrs. S. L. Gill, of Norco, Red Cross Chairman, distributed layette garments to be made.

Mrs. Robert Sharp, of Metairie, was appointed Membership Chairman.

Plans are under way for a gala Doctors' Day celebration with Mrs. P. A. Donaldson, of Reserve, acting as chairman.

Delicious and dainty refreshments were served by the hostess. Among those enjoying her hospitality were Mmes. Clayton, Clark, Sharp, Gill, Guillotte, LaBruyère, and Donaldson.

Mrs. P. A. Donaldson,
Publicity Chairman.

OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Parish Medical Society held its monthly luncheon and business meeting on Thursday, January 9, at the Lotus Club. The hostesses at this time were

Mmes. Coon, Graves, and O'Donnell; Mrs. A. D. Tisdale presided.

Mrs. John Pracher read pieces from the *Bulletin.* Mrs. A. G. McHenry gave an article on "Blood Plasma" from the *Hygeia* magazine.

Mrs. John H. Parrott, who just recently moved to Monroe, was introduced to the auxiliary.

It was decided that our next meeting be a dinner and the doctors are to be invited.

Mrs. C. B. Flinn,
Publicity Chairman.

Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Press and Publicity Chairman.

BOOK REVIEWS

The Rôle of the Liver in Surgery: By Frederick Fitzherbert Boyce, M. S., M. D. Springfield, Charles C Thomas, 1941. Pp. 365. Price $5.00.

In this monograph the winner of the quinquennial Samuel D. Gross prize for research in surgery integrates the clinical and experimental observations upon which present concepts of the rôle of the liver in surgical practice are based. Case histories illustrative of various liver disturbances are discussed in relation to bedside, operative theater, and laboratory studies made by the author, or reported by others.

In addition to considering the changes in liver structures and function which are associated with biliary tract disease, the liver factor in other surgical diseases, such as hyperthyroidism, is presented. Special chapters are devoted to latent hepatic dysfunctions, and the "liver weakling;" the hemorrhagic diathesis in jaundice; "liver death" and the "hepatorenal syndrome"; autolytic peritonitis; and experimental observations and clinical possibilities in respect to the occlusion of the portal vein.

The numerous tests, including the author's serum volume index test, which have been devised for determining bleeding tendency, and those for estimating the manifold functions of the liver, are presented and evaluated. In reviewing the tests for liver function, special consideration is given to those which are used in conjunction with modern methods of conditioning the liver in preparation for major surgical operations. In a section devoted to studies in biliary tract disease by the Quick hippuric acid test of liver function, this test and serum bilirubin tests are compared.

The chapter on treatment includes discussions of the use of glucose, vitamin K and other vitamins, transfusions, oxygen, and dehydrocholic acid, as well as special points in surgical technic, including common duct drainage, cholangiography, gradual decompression of the biliary tract, and non-suture of the gallbladder fossa and cholecystectomy.

The book contains 44 illustrations, consisting of photomicrographs of liver tissue, charts, and graphs. In an appendix, the physiology of the liver is reviewed. This carefully edited book is well indexed according to subjects and there is also an extensive name index.

Ambrose H. Storck, M. D.

Manson's Tropical Diseases: Edited by Philip H. Manson-Bahr, C. M. G., D. S. O., M. A., D. T. M. and H. Cantab., F. R. C. P. Lond. Baltimore, Williams and Wilkins Co., 1940. Pp. 1083. Price $11.00.

The eleventh edition of the well-known standard work originally prepared by Sir Patrick Manson is revised and edited by a well known British authority on tropical medicine.

One may say that this work continues to be a very valuable source of information and that the revision before us incorporates most of the advances of the recent past but does not always omit the obsolete. The volume consists of 1043 pages, excluding the index, and is divided into ten sections, each dealing with a group of diseases and an appendix of two sections; one devoted to medical zoology, the other to laboratory methods.

In a chapter on "Life in the Tropics" in its general aspects, the subject of acclimatization is dealt with briefly and the view set forth that the white race cannot long survive or multiply in a pure state in the tropics, though some striking exceptions are noted. It is suggested that European children after four or five years of tropical residence should be sent to a temperate climate to be educated. In connection with the use of alcohol, the opinion is expressed that a healthy adult male can deal satisfactorily with about 1½ ounces of alcohol daily, preferably as a "sun downer", and in the same paragraph, while noting differences of opinion, the majority view is to regard alcohol as beneficial.

Malaria as the most important tropical disease is treated fully and there is a very satisfactory section on preventive aspects. Quinine prophylaxis is regarded as advisable, though it is pointed out that there is much evidence against this view.

In a classification of the typhus (p. 252) group of fevers, Rocky Mountain spotted fever is listed as equivalent to tick-borne typhus, — a grouping that ignores some important features of the difference between typhus and Rocky Mountain spotted fever. In the same tabulation the squirrel and the woodchuck are listed as reservoirs for the virus of Rocky Mountain spotted fever; so far as the reviewer is aware this never has been proved. The geographic distribution of Rocky Mountain spotted fever is incomplete.

Under plague the observation is made that the plague organism is hard to find in the feces by direct observation—why any one should seek it there is not made clear (p. 278).

On page 281 is an extraordinary statement regarding plague in farm animals, — a heritage of views long since discredited.

Under the differential diagnosis of plague (p. 292) the statement is made that tularemia may resemble plague. The reviewer doubts that this is of frequent occurrence. Mercurochrome (p. 293) is reported to have given encouraging results in the treatment of plague; a statement which must be evaluated in the light of the author's belief in the value of this drug in various septicemic conditions.

The discussion of tularemia fails to recognize (p. 305) the work of Wherry in establishing the first human case of the disease, and the division of the cases by clinical types is hardly mentioned. The author (p. 306) regards the prevention of tularemia as simple, laying stress on the wearing of rubber gloves by those likely to be exposed. Practically the prevention of this disease is by no means easy.

Undulant fever is discussed under infections of the melitensis type and separately under those of the abortus type. The bacteriologic phases of both organisms are well covered. Under prophylaxis (p. 320) there is a warning to avoid insect bites, — the necessity for this warning is not clear to the American reviewer.

Under the heading of "pock diseases" (p. 408) the statement is made that smallpox of the classical type is confined almost entirely to tropical and sub-tropical countries. In making this restriction Dr. Manson-Bahr generously overlooks some glaring exceptions of the relatively recent past. In "A Note on the Treatment of Variola" the editor suggests (a) sulfanilamide (p. 411) on the ground that the mortality "is largely due to secondary pyogenic infection of the respiratory tract", and (b) "large doses of concentrated multivalent antistreptococcal serum." The reviewer doubts the soundness of this advice, especially as relates to the serum. The author also suggests further trial of antivaccinial serum. Alastrim is treated as a separate entity, though "variola minor" is given as a synonym and the statement made that vaccination is highly protective against alastrim.

Under amebic hepatic abscess (p. 555) the author states that this is the most frequently overlooked of the grave tropical diseases, — a serious indictment of our diagnostic abilities, but doubtless one well founded.

The author (p. 599) apparently overlooks the importance of geographic location as an important factor in the communicability of leprosy, but he believes that the clinical type is influenced by climate. The author holds to the view which the reviewer considers correct, that leprosy of itself may give a positive serologic test for syphilis. A much needed word of caution is provided in assessing the value of therapeutic agents in leprosy. Under the prophylaxis of this disease the experience in the segregation in the Philippines is mentioned, and the reviewer believes a too optimistic picture is drawn.

The author is convinced that neurasthenia is of great importance and considers it identical with anxiety psychoneurosis (p. 650) which develops in temperate climates. Hard mental and physical work are regarded as likely to hinder development of neurasthenia rather than the reverse. Removal to a cool climate is the essential feature of successful treatment (p. 693).

The National Institute of Health anal swab (miscalled a sprayer) for the diagnosis of *Enterobius vermicularis* infection is mentioned but the reader is given no idea of its appearance or manner of use (p. 943).

The statement that "sitting upon a night commode containing steaming hot water is said to entice the tapeworm down the bowel and render the head more easily detachable" seems sufficiently illogical to merit mention (p. 822).

Contrary to the statement in the book, it has been definitely demonstrated that monkeys do give positive reactions for amebiasis (p. 534). Under neither technic nor diagnosis of amebiasis is there a description of the zinc sulphate centrifugal flotation technic for the detection of protozoan cysts and helminth eggs and larvae.

There are many examples of carelessness of proof reading; thus Parker is given as Parkes (p. 303) and *Filaria malayi* is spelled with a "z" (malazi) (p. 775).

These and so many other examples of inadequate handling of details might be pointed out, that one is left with the feeling that much more care should have been taken in the preparation of the volume. Nevertheless, the book probably is as satisfactory a treatise on tropical diseases as is to be found in English.

G. W. McCoy, M. D.

Complete Guide for the Deafened: By A. F. Niemoeller, A. B., M. A., B. S.; foreword by Harold Hays, M. D., F. A. C. S. New York, Harvest House, 1940. Pp. 256. Price $3.00.

In the foreword, Harold Hays points out that a revolutionary change in the treatment of deafness has taken place in the last thirty years, concerned largely with the attempt at actual rehabilitation of the handicapped, deafened individual.

Niemoeller says: "This book is intended to help the hard of hearing to help themselves; to supply information, leads, and hints on how to go about bettering their condition after medicine has done all it can for them. . . . . The book is definitely not a manual for the self-treatment of the ear."

There is much interesting, readable, and on the whole accurate, information contained in the seventy-seven short chapters. It will be a useful help to the deafened individual.

H. L. Kearney, M. D.

Modern Dermatology and Syphilology: By S. William Becker, M. D., and Maxmillian E. Obermayer, M. D. Philadelphia, J. B. Lippincott Company, 1940. Pp. 871; pl. Price $12.00.

This recent textbook in English on dermatology presents a different approach to the subject matter in a new style, and gives up-to-date information which has been slow to appear in the more orthodox texts. Becker and Obermayer have written their text in a "modern" style, and have used clear and simple language. Their classification of diseases of the skin differs from the encyclopedic arrangement of most texts. Emphasis has been placed upon subjects considered important by the authors, and certain rarer dermatoses, as well as tropical diseases of the skin, have been omitted.

One feature of this modern book which greatly enhances its value is the introduction to each chapter, termed "Orientation," which, as the authors state, is an intimate approach of the demonstrator to the reader. Another feature is the clear-cut language used in the discussions on treatment, which enables the student or practitioner to get the authors' ideas in a short and concise space.

There is a personal touch throughout the text. The Standard Classified Nomenclature of Diseases is used; illustrations are numerous and well selected. The chapters on general therapy and on syphilis and the neurodermatoses are modern. All in all, this text is a desirable addition to the book shelf of texts on dermatology and will prove to be equally valuable as a reference text for the dermatologist, the student, and the practitioner.

M. T. Van Studdiford, M. D.

Proctoscopic Examination and Diagnosis and Treatment of Diarrheas: By M. H. Steicher, M. S., M. D. Springfield, Ill., Charles C Thomas, 1939. Pp. 149. Price $3.00.

This compact edition contains a brief discussion of the various types of diarrhea. The first part of the book has to do with the armamentarium and technic of a proctoscopic examination. In the second part, the diagnosis and treatment of the more common forms of diarrhea are outlined.

The subject matter included in this small volume has been accurately and more completely covered in other well-known books. It should appeal to only a few who are interested in a brief summary of the subject.

Warren H. Hébert, M. D.

Simplified Diabetic Manual; With 163 International Recipes: By Abraham Rudy, M. D., New York, W. Barrows & Co., Inc., 1940. Pp. 216. Price $2.00.

Diabetes is described in a simplified and easily readable manner, for the benefit of the patient. The predisposing causes such as heredity, obesity and infection are discussed in full. Such important social problems as marriage and pregnancy are presented in an accurate and understandable manner. Emphasis is placed on the importance of diet and the necessity of adequate vitamin intake.

The more common complications, coma and insulin reaction, are described, and means of prevention as well as treatment of these conditions are explained. The procedures of insulin injection and urine examination for sugar are discussed.

The book contains tables of food values, and recipes for dishes of many nationalities.

Norton Voorhies, M. D.

Electrocardiography: By C. C. Maher, M. D., B. S., and P. H. Wosika, M. D., M. S. Baltimore, Williams & Wilkins Co., 1940. Pp. 341. Price $4.00.

In this third edition errors of the others have been corrected. Tracing of the fourth lead has been adopted as standard procedure and appears in many of the diagrams in the book. Serial tracings in acute coronary thrombosis are featured. An effort to utilize the standard nomenclature advocated by the American Heart Association is made by the authors.

The method of presentation is interesting and tends greatly to simplify and clarify the subject, and those in the know say the book in this edition is quite correct.

I. L. Robbins, M. D.

Gynecological and Obstetrical Pathology: By Emil Novak, A. B., M. D., D. Sc. (Hon. Dublin), F. A. C. S. Philadelphia, W. B. Saunders Co., 1940. Pp. 496. Price, $7.50.

This excellent text fills the need created when Frank's splendid monograph on the subject, first issued in 1922, began to become antiquated. In the interval no really worth-while single volume on gynecologic and obstetric pathology has appeared, and this volume of Novak's, long awaited, fills a definite need.

The pathology of all but a few of the rarer lesions of the female genital tract is to be found sufficiently covered in this monograph, for general reference and study. The chapters on special ovarian tumors are extensive, and especially interesting in view of the author's work in the field.

The arrangement of material follows the anatomic method with pathology of the vulva, vagina, cervix, endometrium, uterus, tubes and ovary discussed in that order, being preceded by a chapter on the endocrinology of the menstrual cycle and pregnancy, and followed by chapters on ectopic pregnancy, pelvic endometricus, implantation and placentation, and placental pathology.

This volume should find a welcome place in the library of those interested in obstetrics, gynecology and pathology.

B. Bernard Weinstein, M. D.

Arthritis: By Bernard I. Comroe, A. B., M. D., F. A. C. P. Philadelphia, Lea and Febiger, 1940. Pp. 752. Price, $8.50.

The author has attempted to bring to the student and to the general practitioner the most modern conception of the diagnosis, treatment and prognosis of this too common disease. There are few important details not properly explained. The concrete abstract of every chapter is most helpful in assisting one to secure, in a simple form for immediate use, the chief factors concerned, which is a great help. The openmindedness in which the great problems of arthritis are herewith reviewed, indicates the sound conception of the author in regard to so-called "specifics" for the disease. Yet he is able, from his experience, forcibly to indicate the best form of approach in the diagnosis and treatment, supported by a large bibliography of books and articles by writers well qualified to speak on this broad subject.

Certainly one could therefore recommend this work to all students, physicians, or specialists, who so often need such a ready reference to handle these arthritic cases properly.

P. T. Talbot, M. D.

A Synopsis of Surgical Anatomy: By Alexander Lee McGregor, M. Ch. (Edin.), F. R. C. S. (Eng.). Baltimore, The Williams and Wilkins Company (A William Wood Book), 1939. Pp. 664; 648 figs. Price, $6.00.

When a book goes through several editions, the inference is unmistakable: Those who have used it have approved it. The fact that *Synopsis of Surgical Anatomy* has reached its fourth edition within seven years—it was first published in 1932—is an indication of the solid worth of this small book. As Dr. Raymond A. Dart, Professor of Anatomy and Dean of the Faculty of Medicine of the University of the Witwatersrand, has pointed out in the introduction, the author has made no claim for completeness in the book, but has "rightfully pointed out its usefulness." Its purpose, Dr. Dart continues, is to correlate the dissecting room with the practice of medicine and surgery.

There seems no doubt that the author has succeeded in his purpose. The book is not intended for students, as the author states specifically in his preface, for it makes no attempt to deal exhaustively with the anatomy of the whole body. It is, however, a convenient ready reference book for the graduate student or the practitioner. The material is highly selective, but the choice has usually been wise, the emphasis is correct, and the point of view is always practical.

As to the necessity for a text of this sort, Dr. Dart also makes that clear in his introduction. The human brain, he says, is supposed to be able to absorb 200,000 distinct facts. If that is true, then the student absorbed in the monumental study of anatomy would have no mental room for anything else; hence books such as this.

The author has made no changes of great consequence in this fourth edition, as a comparison with the third edition shows. The subject matter is still divided into normal and abnormal anatomy, and each chapter is still complete in itself. The use of the book as a reference text is thus greatly simplified. The illustrations, practically all of which seem to be carried over from earlier editions, are excellent.

The inclusion of the section dealing with the anatomic bases of clinical tests is perhaps open to criticism. The section is necessarily incomplete, and therefore somewhat misleading. Palpation of the kidneys, spleen, gallbladder and other organs can scarcely be considered tests, and the roentgenologic findings in intussusception, for instance, do not seem to belong in a textbook of anatomy. The space occupied by this section might profitably be devoted to other, more strictly anatomic matters.

Frederick Fitzherbert Boyce, M. D.

PUBLICATIONS RECEIVED

American College of Physicians, Philadelphia: The American College of Physicians—Its First Quarter Century, by William Gerry Morgan, M. D., LL.D., Sc. D., M. A. C. P.

Lea & Febiger, Philadelphia: Diseases of the Digestive System, edited by Sidney A. Portis, B. S., M. D., F. A. C. P. The Extra-ocular Muscles, by Luther C. Peter, A. M., M. D., Sc. D., F. A. C. S., LL.D. A Manual of the Common Contagious Diseases, by Philip Moen Stimson, A. B., M. D. Heart Failure, by Arthur M. Fishberg, M. D. Principles of Hematology, by Russell L. Haden, M. A., M. D. The Therapy of the Neuroses, by Samuel Henry Kraines, M. D.

W. B. Saunders Company, Philadelphia: Electrocardiography in Practice, by Ashton Graybiel, M. D., and Paul D. White, M. D.

Charles C Thomas, Springfield, Illinois: Age Morphology of Primary Tubercules, by Henry C. Sweany, M. D.

New Orleans Medical
and
Surgical Journal

Vol. 93 APRIL, 1941 No. 10

DAVID FRENCH BOYD, A LOUISIANA EDUCATOR*

WILLIAM DOSITÉ POSTELL†
NEW ORLEANS

David French Boyd, the subject of this brief biography, was a native of Virginia and a graduate of the University of Virginia. At the age of twenty-two years, following the financial upheaval of 1857, he went west, with the intention of seeking work on the Southern Pacific Railroad. When he reached Marshall, Texas, he found that the building operations had been suspended, and he therefore turned to teaching, accepting a position first in Claiborne Parish, Louisiana, and later in Bossier Parish. When the Louisiana State Seminary of Learning and Military Academy opened in 1860, he was appointed, through the recommendation of a friend, to the chair of ancient languages and English. From this time onward the biography of David French Boyd and the story of what is now Louisiana State University become inseparably connected.

The Louisiana State Seminary of Learning owes its origin to certain grants of land made to Louisiana in 1806, 1811 and 1827 by the United States Government "for use of a seminary of learning." The Constitution of 1845 provided for the establishment of the institution by the proceeds of the sale of these lands, a charter was adopted in 1848, and in 1853 a site in Rapides Parish, about three miles from Alexandria, was chosen for the school, which was officially designated as the Louisiana State Seminary of Learning.

When the Board of Supervisors first met in May, 1859, it had been decided that the Seminary should be "a literary and scientific institution under a military system of government, on a program and plan similar to that of the Virginia Military Institute." It is interesting to note that even at this first meeting the health of the future students was a matter of importance. The advertisements which appeared in the Louisiana and Washington, D. C., papers announcing that applications would be received for the position of superintendent and for other faculty positions also specified that one of the assistant professors must be a qualified surgeon, so that, in addition to his teaching duties, he could look after the health of the students.

William Tecumseh Sherman was elected Superintendent and Professor of Engineering, and David French Boyd was appointed to teach ancient languages and English. The other assistant professors were Anthony Vallas (mathematics), Francis W. Smith (chemistry), E. Berte St. Ange (modern languages), and Dr. John W. Sevier (ancient languages), who was also to act as surgeon.

The Seminary of Learning opened its doors at a singularly unpropitious time. The first session lasted from January 2 to July 1, 1860. The second opened November 1 of the same year, and before it had ended the War Between the States had broken out. The school struggled along until 1863.

---

*Read before the Orleans Parish Medical Society, June 10, 1940.

†Librarian of the School of Medicine of Louisiana State University.

in April of which year the Red River Valley was invaded by the Union Army and the school finally gave up the unequal struggle.

Immediately on the outbreak of the war, Superintendent Sherman resigned to enter the Union Army and almost the entire faculty and student body followed his example but entered the Confederate Army. One of the first members of the Faculty to resign was Professor David French Boyd. The Supervisors, like the Superintendent, apparently regarded him as "a very clever gentleman" and a very valuable teacher, and at their request, in order that the session might be finished out, he withdrew his resignation and remained in his position until July, 1861, when leave of absence was finally given him.

With a number of cadets he went immediately to Camp Moore, near New Orleans, where he enlisted as a private, so that he might be free to return to the Seminary of Learning if he should be needed there. Promotion was rapid, and he was soon elevated to the rank of major in Stonewall Jackson's army. At this time the Supervisors of the Seminary persuaded the Confederate War Department to release him from his command for duty at the school. The request was granted, but when he returned to Louisiana he found that it had been decided not to reopen the school during the war. He therefore reentered the army, this time as a member of General Richard Taylor's staff. In the fighting which took place shortly afterward he was taken prisoner, and it is of interest that his exchange was arranged for by General Sherman, his former superintendent. During the rest of the war Major Boyd acted as adjutant-general in General Brent's Cavalry Brigade. In June, 1865, he was paroled at Shreveport, with the last of the Confederate troops.

Major Boyd, it will be remembered, was still a member of the Seminary of Learning Faculty. Immediately after the surrender he began to take steps toward the reorganization of the school, and in July, 1865, he was appointed by the Board of Supervisors to the position of acting superintendent. As might have been expected, he found an appalling amount of work to do. The physical condition of the building and grounds was deplorable. Everything was in need of repair. The walks had been torn up, bushes and weeds covered the campus, the fences had been burned, many of the doors and windows were gone, the roofs were leaking, the floors were rotting, and the furniture, scientific equipment and books had been removed by the Federal Army in 1863 and 1864. Worst of all, financial support for the Seminary was at a very low ebb.

Superintendent Boyd possessed admirable foresight and vision, and in his mind was the conception of a great state university for Louisiana. As the first step he proposed that the then defunct University of Louisiana at New Orleans (now Tulane University) be reorganized and united with the Seminary. The plan was that the Seminary should consist of the academic and engineering schools and the University at New Orleans of the law and medical schools. Constitutional limitations, unfortunately, were found to stand in the way of this far-sighted plan. Failing in this endeavor, Boyd next attempted to organize the Seminary on the lines of a university. Two years of required studies were to be followed by two years of optional studies, and the plan, which was put into operation at once, was continued with some modifications until 1880.

The four-year literary course embraced Greek, Latin, Spanish, mathematics, natural philosophy and anatomy, civil engineering, chemistry and geology. The scientific course was the same except that Greek was omitted and more work was required in chemistry and engineering. The civil engineering course for the first two years was the same as the literary or scientific course; the last two years were made up chiefly of engineering and related subjects.

Since the Special School of Medicine is the chief concern of the medical profession, Colonel Boyd's (he soon became Colonel, as did all the earlier presidents of L. S. U.) activities in this connection must be outlined in some detail. At a meeting of the Board of Supervisors held June 11, 1866, a Mr. Boyce had introduced a resolution which provided, because "a general knowledge of

Anatomy, Physiology and Hygiene is desirable in the students of this institution," that there be created a professorship of these branches. The salary was to be one thousand dollars yearly, with quarters, and the surgeon of the Seminary was to be "the professor of the said chair."

The occupant of "the said chair," it will be noted, had a large number of responsibilities. Another professor, who was advertised for in the same year, also seemed likely to be kept busy. He was to serve "as professor of Chemistry, Geology and Mineralogy" and in addition was to be "a graduate of medicine and an experienced physician; his testimonial embracing qualifications in both branches . . . "[1]

Dr. J. W. Wilson, a relative of the then Governor of Louisiana, Henry W. Allen, was found to possess the necessary qualifications and was accordingly elected Acting Surgeon of the Seminary. A native of Virginia and a graduate of the University of Virginia, he had practiced medicine in St. Louis for fifteen years before the war. He served in the Confederate Army and could not return to Missouri immediately after the surrender because of the test oath requirement of that state. The day after the resolution authorizing the establishment of the Special School of Medicine of the Louisiana State Seminary of Learning he was notified of his appointment as Surgeon and Professor of Anatomy, Physiology and Hygiene. Dr. John R. Page, who, like Dr. Wilson, had been graduated from the University of Virginia and had served in the Confederate Army, was appointed to give lectures in materia medica.

The course of study of the Special School of Medicine warrants a further digression from Colonel Boyd's personal biography. Its purpose, according to the catalog issued in 1866, was "to give a good preliminary preparation for the School of Medicine in New Orleans (now Tulane University). *But more accomplished.*" It was further specified that in both the medical and engineering schools the course should include French and Spanish, belles lettres, mental and moral philosophy, and political economy. A further insight into the educational ideas of the times is gained by certain other provisions in the curriculum. Materia medica, mineralogy and geology were taught as a single course in the School of Medicine. Latin was required in the School of Medicine (which would be an eminently desirable requirement still), but anatomy and physiology, for some unknown reason, were taught in the School of Engineering as well as in the medical school.

The catalog further stated that there should be a distinction between the diplomas granted to the graduates of the two schools. Graduates in the engineering school were to receive diplomas with the title "Graduate in the School of Civil Engineering," but the diplomas of the medical students merely read "Proficient in the School of Medicine."[2]

The attempt to build up a medical library was one of the interesting activities of the Special School of Medicine. In all, 443 books on medical subjects were collected, and the subscription list included six scientific journals.[3] The three-volume set of "Leçons Orales de Clinique Chirurgicale" now in the Agramonte Memorial Library of the present School of Medicine of Louisiana State University seems to be all that remains of the original collection. Evidence of its inclusion in it is furnished by the stamp on the title page, "Louisiana State Seminary of Learning and Military Academy near Alexandria, La."

The authorities apparently realized during the first session that their efforts to found a school of medicine were ill-timed and premature. A resolution was introduced in October, 1867, recommending that it be discontinued, but it was voted that this action be deferred until a longer trial could be given. The 1867 catalog, however, makes no mention of the Special School of Medicine, and the minutes of the Board of Supervisors show that Dr. Wilson and Dr. Page were assigned to teach non-medical subjects.

Thus ended the first abortive attempts to teach medicine at Louisiana State University. The Charter of 1877 included a specific provision for the establishment of a medical school, but nothing was done in that direction until December, 1930, when plans were made for the present School of Medicine of Louisiana State University, the first session of which was opened the following October.

After 1867 it became increasingly difficult to continue the Louisiana State Seminary of Learning, due to the chaotic condition of state finances during the reconstruction period. Warrants for Seminary appropriations, when paid at all, were in state obligations and depreciated currency. They were never paid in cash, and the discounts from 1867 to 1869 averaged 32 per cent. Professor J. M. Garnett, who left the school soon after the radical reconstruction period in Louisiana set in, wrote:[4] "Colonel Boyd was an excellent officer, and with a less efficient man the Seminary would have gone under long ago. His chief thought was how to get money to keep the Seminary going. The appropriations were warrants which Colonel Boyd had to dispose of at a fearful discount. It was a wonder how he kept up the institution as well as he did, especially in view of the financial condition of the state after the war."

When the buildings of the Seminary took fire and burned to the ground the morning of October 16, 1869, a less resolute man than Colonel Boyd would have considered that the end had indeed come. Instead, he dismissed the students temporarily, but told them, with incurable optimism, to hold themselves ready to report at any time to new quarters.

These new quarters, after the investigation of several possibilities, were finally located in the building of the Institute of the Deaf and Dumb Asylum in Baton Rouge. Attempts to transfer the building to the school were unavailing, and for many years the cadets of Louisiana State University (as the Seminary had been named in 1870) and the inmates of the Institute were housed in the same building. The inconveniences of the arrangement need scarcely be enlarged upon. There was insufficient room for the museums, library and laboratories, the cadets were housed eight and ten to a room, and they drilled in the public streets because the grounds of the Institute were entirely inadequate for exercise and military maneuvers.

Financial difficulties continued. The faculty changed frequently, and the remaining professors, to compensate, were obliged to take on extra courses or rearrange the courses they were teaching. At one time Colonel Boyd found himself teaching mathematics instead of Greek and Latin. Again and again he had to appear before the Legislature and literally beg for funds, an extremely distasteful necessity because the legislators then consisted of scalawags, deserters from the Confederate Army, extreme carpetbaggers, and a few negroes, all of whom, as Colonel Boyd put it, were "enemies of the University."

During the session 1872-73 the beneficiary students, whose tuition, fees and board were paid by the Legislature, were withdrawn, and only about 45 students remained. The University, in fact, was worse off in 1873 than it had been in 1865. Colonel Boyd, entirely undaunted, appealed to the people of the state for help, saying that he had given up all hope of receiving aid from the legislature. The response was meager, and from 1873 to 1877 the condition of the school was deplorable in the extreme. No money at all was appropriated by the Legislature and the only source of revenue was the small fees paid by the students. The school was frequently sued for debt, and many such suits were brought against Colonel Boyd personally. Most of the professors withdrew, one after the other, to seek employment elsewhere, and the few who remained because of their devotion to Colonel Boyd served for small pay or none at all.

Throughout these trying days Colonel Boyd remained steadfast. He was several times offered excellent positions elsewhere, and his friends repeatedly urged him to give up his apparently hopeless task. To these offers and to the entreaties of his friends he replied, "I can't leave until the war is over." The diary which he kept during 1874 and 1875 tells the whole story of struggle, hardship and disappointment. December 22, 1874, he wrote, "I have but one pair of old pants and they are worn out; and but one old cit. coat, in the same fix." Frequently, he wrote, the professors' table was without meat, sugar or coffee, "and so it has been for nearly two years past; often after breakfast we have nothing for dinner —no money, no credit; yet we lived."

Then a new day dawned. In 1877 the Louisiana State University was merged with the Louisiana Agricultural and Mechanical College which had been founded in New Orleans in 1874, and adequate financial support for both institutions was secured. Colonel Boyd at first declined the presidency, believing that a new man should be appointed, but was finally persuaded to accept the position. The enemies whom the monetary difficulties of the early years had made for him attempted soon afterward to discredit him and have him removed from his position. A legislative committee was appointed for the investigation, but found the affairs of the University in perfect order and had only praise for his administration. When he finally retired, in 1886, he left an institution whose forward path lay straight and plain before it.

As far as lay in his power Colonel Boyd, from first to last, filled the minds of his pupils with ideals of reverence, morality, honor and manhood. Those ideals permeated his own conception of "true and virtuous education." Again and again they appear in his reports, and he saw to it that they were embodied in Act 145 of the Legislature of 1876, which defined the scope of Louisiana State University:[5] " . . . shall have for its object to become an institution of learning, in the broadest and highest sense, where literature, science, and all the arts may be taught; where the principles of truth and honor may be established; and a noble sense of personal and patriotic and religious duty inculcated; in fine, to fit the citizen to perform justly, skillfully, and magnanimously all the offices, both private and public, of peace and war."

Colonel Boyd was himself a living example of what he believed. He showed his students as well as taught them that happiness can be found in every walk and every stage of life in the path of duty and the service of others. If ever a man lived who believed in the ultimate triumph of the right it was David French Boyd. It was this that made him undergo the incredible toils and privations of the early days of the school. Every page of his diary burns with the fire of selfless devotion. It is a story of struggle and suffering and poverty, of sorrow and privation and pain, of efforts foiled and hopes deferred, but it is also a story of undying faith and trust and confidence in the right.

We commemorate Colonel David French Boyd because he was a benefactor of Louisiana and of the whole South. We commemorate him with even truer reason because in founding a great university, literally without money, he endowed it with his own radiant soul.

REFERENCES

1. Minutes of the Board of Supervisors of the Louisiana State Seminary of Learning and Military Academy, 1865-1876.

2. Official Register of the Officers and Cadets of the Louisiana State Seminary of Learning and Military Academy. Session ending June 30, 1866.

3. Whitfield, Edwin: History of Education in Louisiana, U. S. Bureau of Education. No. 20. Government Printing Office, 1898. pp. 93-94.

4. Fleming, Walter L.: Louisiana State University 1860-1896. Louisiana State University Press, 1936, p. 144.

5. Acts passed by the General Assembly of the State of Louisiana at the first session of the fifth legislature begun and held in the city of New Orleans January 1, 1877, and at the extra session convened at the city of New Orleans March 2, 1877. New Orleans, Geo. W. Dupre and Co., 1877. Act No. 145.

SURGICAL TREATMENT OF DETACHMENT OF THE RETINA*

W. R. BUFFINGTON, M. D.
NEW ORLEANS

Simple retinal detachment is a separation between the pigment epithelial layer of the retina and the other retinal layers by fluid.

Anatomically, the retina is attached at the optic disc and at the ora serrata. The intervening part is in contact with the choroid, but not attached to it. Primary degeneration of the vitreous, perforation of the globe, perforating ulcers, and subretinal hemorrhages, by lowering intra-ocular tension, predispose to retinal detachment.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 24, 1940.

Opinions differ as to the cause of simple detachment. One or more of the following conditions is probably the predisposing cause in most cases: (a) The intra-ocular pressure in front of the retina falls below normal; (b) the pressure behind the retina is increased; (c) adhesions between the vitreous and the retina pull on the latter, causing its detachment.

DIRECT CAUSES OF RETINAL DETACHMENT

1. Concussion of the eyeball; subretinal hemorrhage; perforating injuries; perforating corneal ulcers, notably seen as a remote complication after removal of intra-ocular foreign bodies by the posterior route. I have seen five cases of this type.

2. In progressive myopia the non-elastic retina is in contact with the elastic sclera, and the choroid is put on increased tension due to the enlargement of the globe. The elastic sclera softens as the vitreous becomes more liquid, culminating in detachment.

3. Inflammations: Severe acute and chronic uveitis, are often responsible for detachment. Retinitis, by producing exudates and changes in the vitreous, is a potent cause. All cases of retinitis externa with massive exudates, known as Coats' disease, which I have seen finally end in detachment. All intra-ocular inflammations and hemorrhages which leave behind organized fibrous tissue show a high percentage of detachments. Prognoses, with any treatment in such cases, are practically nil.

4. Constitutional diseases: (a) Toxemia of pregnancy (Schiotz saw seven in 6800 cases; the prognosis is good); (b) in the late stages of nephritis.

5. The retina is pushed forward often in a bullous-like protrusion in the so-called detachment of the choroid which in some instances follows cataract extraction and trephine operations for glaucoma. The prognosis in these cases is favorable. One patient only have I seen following a trephine operation and in this person a permanent detachment resulted.

6. Tumors of the choroid are a frequent cause for detachment. It is obvious that such cases of detachment are not amenable to surgical treatment, and the removal of the eyeball is necessary due to the fact that these tumors in nearly all instances are melanosarcomas.

In discussing traumatism, the most frequent direct cause of retinal detachment, this statement by Arrugo is worth repeating: "In normal eyes, traumatism must be severe to produce retinal detachment. In predisposed eyes, a very slight trauma may produce the condition." In normal eyes it is unusual for detachment to follow even severe blows, unless a perforation of the globe or a rupture of the retina takes place. Direct trauma to or about the eye is common to football players, pugilists, and wrestlers. Detachment is relatively uncommon among them. The reason for this is that they are young and healthy. They have not yet had intra-ocular degeneration and other changes which take place as age advances.

In the predisposed eye, a slight blow over the eyes or on the head, bumping into a door, even rubbing the eye with the fingers, may be responsible for a detachment. In these eyes the time between the trauma and the detachment may be several days or weeks. In some instances it is delayed several months, according to the best observers.

This brings up the question: What are predisposed eyes?

1. Myopic, or near-sighted changes account for from 50 to 60 per cent. Myopia is on the increase, due to the intensive requirements of modern education. It is a disease and should not be looked upon as merely an error of refraction to be corrected with glasses. Malignant myopia, or progressive near-sightedness, should be given serious consideration in early life among those children affected. In addition to being a most important predisposing factor in detachment of the retina, myopia is often responsible for serious impairment of vision in later life.

2. Senile changes in which there is a thinning of the retina due to cystic degen-

eration, and peripheral fundus through the dilated pupil.

According to Stallard's figures, the onset of detachment was sudden in 52 per cent, insidious in 42 per cent, traumatic history 16 per cent, previous eye trouble 24 per cent. Refractive errors: Myopia 42 per cent, hypermetropia 11 per cent, emmetropia 11 per cent, vitreous opacities 47 per cent. (My experience shows a higher incidence). Age incidence: More frequent between 40 and 70 years old; average 60 years.

The subjective symptoms of detachment are: Light flashes; waving curtains; reduced light minimum; contraction of the visual field. On the other hand, in many cases the disturbance is not noticed by the patient until the macula or central retina have become involved.

TEARS, RENTS, DISINSERTIONS

The importance of recognizing and locating the rupture in the detachment of the retina known as tears, rents, and disinsertions, and their closure by modern surgical means, are the most important factors in the successful treatment of detachment of the retina. Tears may be secondary but once formed they create a vicious circle. So, their closure is vital to success. Tears, rents, or disinsertions, are found in at least 75 per cent of all cases of spontaneous or idiopathic detachments (the use of the word spontaneous or idiopathic is applied to these cases of detachment in which no other cause can be found and these are the ones which are amenable to surgical treatment). These tears or rents can exist and yet not be visible, being too far in the periphery of the fundus. In order therefore to find them it requires time, patience, and a careful examination through a widely dilated pupil with an excellent ophthalmoscopic illumination. Tears are often multiple. In some instances these ruptures, tears, or disinsertions, are so extensive that treatment would be of no value.

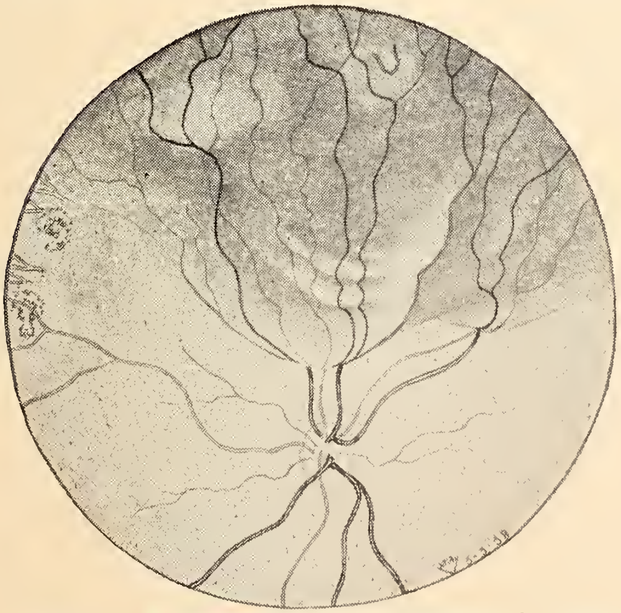


Fig. 1. Extensive retinal detachment in a patient following a fall.

LOCALIZATION OF TEARS

You can readily understand that since the retinal tears are located on the inside, and the surgical treatment is applied to the outside of a globe, it becomes vitally important to locate the tears in order to treat them through the scleral surface. To miss the tears would be to defeat the purpose of the treatment.

The history is most important in determining the location of the tear and beginning detachment. If temporal and above, the patient first notices flashing of light, flickering in the lower nasal field. If his observation is accurately made, one begins to form a pretty good idea where the tear is located. As the detachment advances, the field contracts. Some observers have thought in cases of trauma the tear is often opposite the site of the blow. A history of a moderately slow loss of the upper half of the field is almost sure to have a disinsertion below, temporally. Exact localization of the tear is not vital to successful surgical treatment of retinal detachment. One must select a practical way to serve his purpose best. Most methods published recently in the literature, though accurate, are too complicated for practical use; others are so entwined with higher mathematics that the average doctor is lost in a maze when he attempts the solution of the problem.

Ridly gives practical data in the following statements: "Tendency to underestimate distance between the hole and the periphery." His rule is:

1. Count 10 mm. from limbus to retinal periphery at the ora serrata.
2. Estimate each disc diameter 2 mm. instead of one.
3. A diathermy application 12 mm. from limbus is just visible in its entirety, at the periphery. One, 22 mm. from the limbus is as far back as the tears are seen, almost to the macula. Between these two points good judgment must be exercised.

The following has been my procedure in a practical localization:

1. Chart the fundus on a flat surface.
2. Intra-ocular measurements are made in disc diameters; the scleral surface in millimeters.
3. In transposing, each disc diameter equals 2 mm.
4. The watch dial is the guide for the circumference location of the meridian of the tear.

TREATMENT

The recent advances in the treatment of detachment of the retina represent a distinct advance in medical science. How helpless oculists of the past felt when placed face to face with this condition.

The basic treatment has been to co-apt the detached retina and choroid by drainage of the subretinal fluid. The choroid, compared to other vascular membranes of the body, has very feeble absorptive powers. To increase bodily absorptive powers the older method of treatment, with which you are familiar, was to give diuretics and diaphoretics: Hot air, baths, purgatives, pilocarpin, and injections of hypertonic saline solution. The cures were few and far between.

A careful study of each particular case plays an important role to guide us in the course of treatment to follow. The etiology, a careful study of the vitreous, retina, and choroid, are essential. Gross vitreous changes, intra-ocular fibrous bands resulting from inflammations and hemorrhages, active retinitis or choroiditis, patients with giant tears, and intra-ocular hypotension, are poor risks, and are best treated along conservative lines. Because of the strenuous preoperative and postoperative requirements essential to successful treatment, feeble old people are manifestly poor risks.

Absolute rest in bed is the first essential in treatment. The patient's head is lowered or elevated, depending on whether the detachment is above or below. Binocular bandages, and peep-hole goggles are used; the binocular bandages for two weeks after the operation, then the peep-hole glasses worn. Experience has taught that the bodily and ocular movements will defeat any treatment, no matter how perfect.

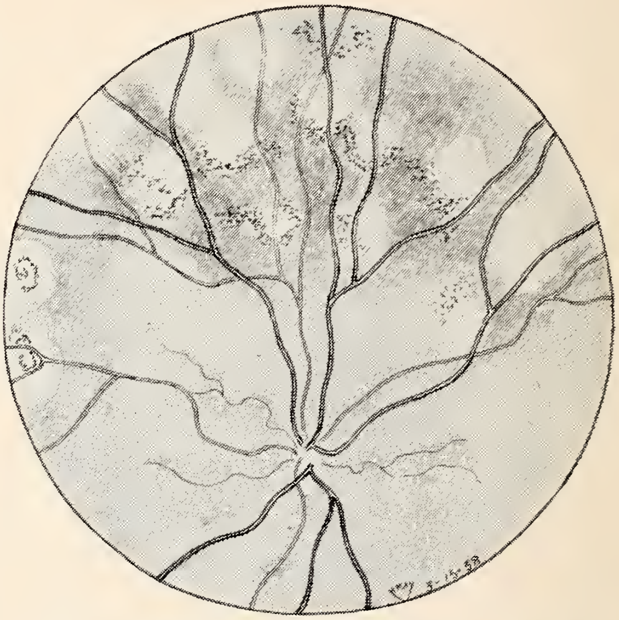


Fig. 2. Reattachment showing retinal scars, a result of the surgical treatment by the diathermy multiple micropin punctures. These adhesive scars hold the retina in place. Final vision in this case was 20/30.

My best results have been obtained by the following procedure:

1. A careful history as to cause.
2. The location in the field of vision of the first subjective symptoms of flickerings or field defects.
3. A careful study of the detachment.
4. Localization of tear, tears, or disinsertion.
5. Immobilize, and bandage both eyes to study the effect on advancement or recession of the detachment, and better to localize the tear.

6. Prepare a patient as for a cataract extraction or any other intra-ocular surgery.

7. The time element between detachment and operation is not as important as it was once thought. Some of my best results have been obtained after six months' duration or longer.

8. Careful fixation of the patient; localization of the tear, if possible; and a study of the extent and type of detachment.

9. After the conjunctiva and one or more muscles are divided, and the markings made for location on the scleral surface, 20 to 30 fine, short, sharp, micropins are introduced through the sclera with a diathermic current of 30 to 40 milliamperes. After these have been introduced, more inaccessible areas marked for treatment are punctured with the Lacarrere instrument with a current of 50 to 60 milliamps. All pins are then removed quickly, almost simultaneously. The failure of the sub-retinal fluid to be evacuated often defeats the purpose of the operation. It is vital for the retina to come in contact with the diathermically treated choroid. A point in my experience: The subretinal fluid drains most successfully from the multiple micropin punctures when the pins are removed almost simultaneously. This is certainly true if all the pins are kept intact until the operation is completed. I think the better drainage is due to the uniform hydrostatic escape of the sub-retinal fluid causing the detachment.

In treating a disinsertion at the ora serrata, two rows of micropins are introduced behind the defect. I try to make distance between pins about 3 mm. In tears located some distance from the area, one row of pins is inserted in front of and a second row behind it. The treatment is not confined to the area of the tear, but the punctures are so made as to complete the whole detachment in a given quadrant.

The micropins must be short and fine in order not to damage the retina. I have had most of my pins so shortened that even in flat detachments they cannot penetrate deep enough to touch the retina.

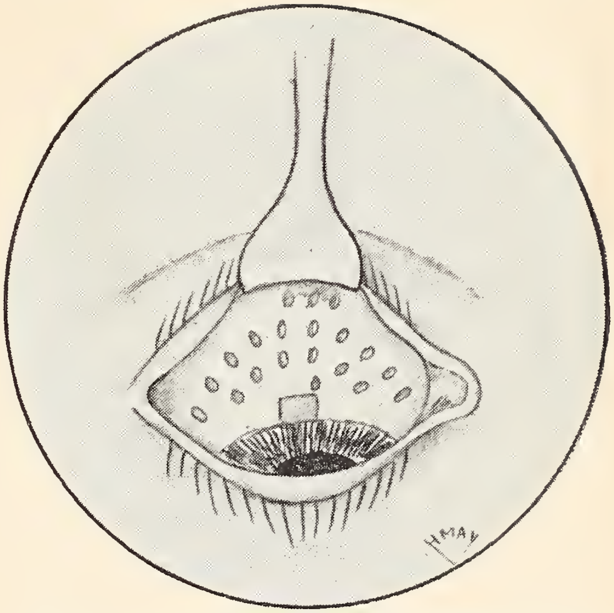


Fig. 3. Shows the micropins in place following their insertion by diathermy. These are removed after the necessary number have been inserted. The subretinal fluid passes out through the punctures, thus permitting the retina to be replaced against the choroid. After healing, if successful, the results are as seen in Figure 2.

In a series of forty patients operated on, three have been operated on twice, successfully, giving a vision, respectively of 20/30, 20/70 and 20/100. Another, aged 63, a high myope, had a detachment of one year's duration; the operation was successful. Vision was improved from hand movements to 20/70. In her case the tear was found and localized. In three patients following cataract extraction, operation was successful in one and a failure in two.

POSTOPERATIVE COMPLICATIONS

1. Panophthalmitis has been seen; I have had one case.

2. Vitreous hemorrhages are a serious complication and may defeat an otherwise successful operation; often seen the day after the operation.

3. Marked chemosis is regarded by some as offering an unfavorable prognosis, indicating that the exudation of fluid externally is nearly always associated with transudation of fluid beneath the retina; or, it may occur on the third or fourth day when excessive diathermy has been used.

4. Some have reported thrombosis of retinal veins, which defeats the purpose of the operation.

I want to tell you about these micropins. We just put them on and drive them in with a current of 20 to 35 milliamperes, like tacks. They go through the sclera. We use about 30 of these pins, 3 millimeters apart. When we take the pins out, the retina goes back into place, and where each pin was attached a little inflammatory adhesion takes place. Of course, blindness always occurs where these pins were, but it is not central blindness; the patient will have vision.

CONCLUSION

Many people who have certain types of ocular disease can have a marked reduction of vision and yet will be able to lead a very useful and worthwhile life.

HYPERTENSION AS A SYMPTOM OF RENAL FAILURE

A REVIEW OF THE RECENT LITERATURE*

ROBERT HEBARD BAYLEY, M. D.†
NEW ORLEANS

Ivy and McEwen,[1] in a recent discussion of the physiologic aspects of hypertension, advanced the concept that there is at least presumptive evidence that this condition is caused by a hormonal agent of renal origin. It is likely that the hypothetical agent may be the intermediate product of an enzyme acting on a substrate in the blood. The acceptance of this concept, it is clear, leads to the conclusion that the kidney is an organ of internal secretion as well as of external secretion and is in this sense bifunctional.

The work of two outstanding investigators, Goldblatt[2] and Page,[3] seems to support the concept recently advanced by Ivy and McEwen. Goldblatt, by constricting the main renal arteries with a special clamp left *in situ,* was able to produce experimental chronic hypertension due to renal ischemia. Page has shown that the reaction of a renal extract with normal blood results in the formation of a vasopressor substance which is found in the peripheral circulation of dogs with experimental hypertension and of human subjects with nephritic, malignant or essential hypertension.

The retention of waste products is generally accepted as a symptom of failure of the external renal function. The new concept would seem to demand that hypertension be regarded as the symptom of failure of the internal renal function. Very little is known as yet about the normal internal renal function, but it can be stated quite positively that its disturbance, presumably by ischemia, results in hypertension. It can also be stated that hypertension cannot occur unless the adrenal cortex is present.[4]

A reconsideration of the various clinical renal disorders in the light of these facts would probably reveal them to be characterized by external or internal renal failure or by bifunctional failure. Diabetes mellitus, for example, is a well known illustration of unifunctional failure of the pancreas, while pancreatitis may occasionally serve as an illustration of the bifunctional type of pancreatic failure.

Goldblatt,[4-6] by moderately severe constriction of the main renal arteries, has been able to produce experimental failure of the internal renal function without any evidence of failure of the external function. He was also able to produce the bifunctional type of failure by an extreme degree of arterial constriction.[2, 5, 6] He compared the vascular pathology produced by moderate constriction of the renal arteries to that seen in benign essential hypertension in man and the more pronounced vascular pathology produced by extreme constriction to that seen in the malignant phase of essential hypertension in man.

The acceptance of the concept that hypertension is a symptom of failure of an internal renal function is not at all the same as the acceptance of the concept that hypertension is necessarily of renal origin. A simple comparison will make the distinction clear. Macrocytic hyperchromic anemia is a symptom of failure of the gastric hormonal function, yet it may be of hepatic origin, as in cirrhosis of the liver, of gastric origin, as in pernicious anemia, or of dietary origin, as in pellagra.

---

*Read at Medical Symposium, Annual Meeting of Louisiana State University Alumni Federation, Baton Rouge, October 26, 1940.

†From the Department of Medicine of the School of Medicine of Louisiana State University.

An examination of the more common clinical conditions upon which the concept of bifunctional renal activity seems to have a bearing reveals that so-called essential hypertension is by far the most common condition in which hypertension alone is the predominating symptom. The chief complaints of patients with essential hypertension are usually cardiac or cerebral in character, yet the new concept of hypertension compels one to look for a possible cause of disturbance of the internal renal function. Time and time again, furthermore, one is amazed at the fruitful reward of a search made with definite presumptions in mind.

For many years no one had been concerned with the apparently causal association of hypertension and the chronic or healed forms of pyelonephritis, and up to 1930, according to Bell and Pedersen,[7] no cases of bilateral pyelonephritis associated with hypertension had been reported. Since that time, however, a number of publications have appeared in which hypertension is related to occlusive vascular changes in the kidneys which may occur in pyelonephritis.[8-11] Even more striking are the increasing numbers of cures of hypertension by the performance of nephrectomy for chronic or healed unilateral pyelonephritis.[12-16]

A case was recently reported in which the relief of hypertension followed nephrectomy for unilateral hydronephrosis, without renal infection or vascular changes.[17] Examinations of the urine were negative. Such a case is an exception to the general idea that hypertension in these conditions is necessarily dependent upon arteriolar changes due primarily to infection. It suggests that distortion of the renal pelvis can produce renal ischemia by compression deformity of the renal arteries; neither inflammation nor occlusive vascular disease was demonstrable in the excised kidney.

In a case of bilateral hydronephrosis, reported by Nesbit,[15] bilateral nephrostomy was followed by the relief of an associated hypertension as soon as the second kidney was drained. This patient had a bifunctional type of renal failure. He was sufficiently improved after operation to return to work, but his impaired excretory renal function continued unimproved.

In the future, the patients who make up this group will no doubt account for a commendable reduction in the number of patients formerly classified as having essential hypertension. The diagnostic importance of routine pyelography in all patients with obscure hypertension cannot be overemphasized, even when the urinary studies are entirely negative.

Blackman,[18] in a recent study of cross-sections of the main renal arteries, found a moderate or a marked arteriosclerotic stenosis of the lumina in 86 per cent of a group of patients coming to autopsy with a diagnosis of essential hypertension. There was, however, a negligible incidence of similar changes in a control series of cases in which hypertension was not present. Hypertension was the predominant symptom in the first group of cases, and in them the hypothetical internal renal function was presumably disturbed by renal ischemia. As yet there is no definite idea how great a reduction would be made in the number of patients classified as having essential hypertension by segregating this group of patients.

Moritz and Oldt[19] have pointed out that if unilateral occlusive arterial disease of the kidney could be diagnosed clinically, the associated hypertension might be cured by ipsolateral nephrectomy. Perhaps arterial injection of a suitable medium opaque to roentgen-ray might offer diagnostic possibilities in these cases.

The hypersthenic type of patient, with a family history of hypertension and vascular accidents, is very familiar to all clinicians. It is conceivable that in these patients the nervous system may be capable of initiating renal arteriolar spasm of sufficient severity to cause renal ischemia. At first the spasm might occur only under periods of great stress. Later it would occur under more casual circumstances. Once the ischemia was established, however, there would be a tendency for the formation of a vicious circle. The vasopressor substance resulting from renal ischemia would initiate a generalized arteriolar constriction that would aggravate further the renal ischemia already present. The not infrequent favorable results obtained in hypertension by operations on the nervous system support this hypothesis.[20-31] Most of them are aimed at relaxation of the splanchnic arterioles, but experimental evidence suggests that improvement probably results from a relaxation of the renal arterioles.[4]

For the same reason certain patients who are seen early enough and who are properly handled may improve with simple measures directed merely at the relief of nervous strain. The frequent failure of surgical measures, on the other hand, would seem to be due to irreversible changes within the renal vessels.

The necrotic arterial changes which some writers consider to be characteristic of the malignant type of hypertension have been found, both clinically[11] and experimentally,[4] to be associated with uremia. They may therefore be regarded as evidence of the bifunctional type of renal failure.

DIAGNOSIS

The group of patients whose disturbance of renal function is due directly to renal arterial disease offers the greatest diagnostic difficulty at the present time. Hypertension is often the only symptom they present and the tendency is, just as it has been in the past, to classify them in the essential hypertensive group. Those with healed pyelonephritis may have normal urine and tests of external renal function may be normal. Those with renal arteriosclerosis are beyond diagnosis by methods presently available.

Certain infectious diseases, such as lupus erythematosis, periarteritis nodosa, and rheumatic fever produce a generalized arteritis, but hypertension is present in association only when there is extensive involvement of the renal vessels.[11] The clinical diagnosis of renal arteritis, however, can be made only by inference. It seems probable that other infectious diseases which are now associated infrequently if at all with arteritis may ultimately be shown to be related by renal arterial involvement to an apparently coincidental hypertension.

When the concept of renal bifunction is applied to glomerulonephritis, the correlations are interesting and perhaps of some practical value. The intensity and extent of glomerular damage determines the severity of renal ischemia which, in turn, determines the severity of the associated hypertension. In acute cases a mild degree of hypertension which soon begins to diminish has long been considered to indicate a favorable prognosis. Severe hypertension, on the contrary, is usually associated with a grave outcome. I have recently observed a patient in whom the blood pressure reached a height of 180/140 within a week after the onset of the acute process. The patient, a five year old boy, died in uremia after an illness of two months, during which time the heart had doubled its normal weight.

In subacute glomerulonephritis the appearance of hypertension heralds the onset of the chronic stage and is looked upon as an indication of irreversible vascular changes, though it may be many months before nitrogenous retention is evident. Hypertension in this condition, therefore, is often a more delicate index of disturbed renal function than are any of the various tests which are used to estimate the status of the excretory renal function.

MANAGEMENT

A word should be added regarding the management of patients with so-called essential hypertension. The concept of hypertension as a symptom of disturbance of a hypothetical internal renal function will serve, first of all, to make the clinician look carefully to the kidneys for a possible correctable factor. Failure to find it will lead to the institution of medical management, at least in the majority of cases. Medical therapy, according to Robinson and

O'Hare's[32] admirable summary, should be as follows: ". . . advise the patient to take adequate rest, avoid mental and physical strain, bring his weight to a more ideal level, eat simple food in small amounts, limit his fluid intake to reasonable levels, and avoid excess of any nature. If [we] add to this a mild sedative [we] will have given the patient what forms the backbone of our present day therapy."

In the occasional case other therapeutic measures may be used. Thus potassium sulfocyanate, which was introduced by Nichols[33] in 1925 but which has never been widely used, has a definite place in the management of certain carefully selected cases. It produces a fall in blood pressure and it should not be used, as a rule, in patients with a history of angina pectoris, congestive heart failure, cerebral accident, or significant failure of the external renal function.[32] The dosage differs widely in different individuals, and while it is being determined the blood level of the drug must be carefully watched. Levels of 7-12 mg. per 100 c.c. of blood have been suggested as optimum.[32]

Certain patients are candidates for surgical intervention, particularly patients with hypertension of relatively short duration. It appears to be impossible, however, to predict the outcome of operation in any given case.[34] Unilateral nephro-omentopexy has been shown to cure chronic hypertension due to renal ischemia in dogs in which the contralateral kidney had previously been removed.[35] The operation, the purpose of which is to establish a collateral renal circulation, was first done on man in 1936 and since that time some twelve similar operations have been reported, with encouraging results.[36, 37] Bilateral nephro-omentopexy does not seem to have been attempted as yet.

SUMMARY AND CONCLUSIONS

Experimental work on the problem of hypertension is making good progress and has already begun to clarify and even change certain of our ideas concerning hypertension in man. Progress, both experimentally and clinically, will no doubt continue at an accelerated rate, and the practicing physician will need to watch developments closely if his patients are to receive the benefits of up-to-date management of their disease.

REFERENCES

1. Ivy, A. C., and McEwen, E. G.: Physiological consideration of certain aspects of hypertension. Quart. Bull., Northwestern Univ. M. School, 14:72, 1940.

2. Goldblatt, H., Lynch, J., Hanzal, R. F., and Summerville, W. W.: Experimental hypertension due to renal ischemia, Bull. Acad. Med. Cleveland, 16:6, 1932.

3. Page, I. H.: The vasoconstrictor action of plasma from hypertensive patients and dogs, J. Exp. Med., 72: 301, 1940.

4. Goldblatt, H.: Experimental hypertension induced by renal ischemia, Harvey Lect., 33:237, 1937-38.

5. Goldblatt, H.: Studies on experimental hypertension. V. The pathogenesis of experimental hypertension due to renal ischemia, Ann. Int. Med., 11:69, 1937.

6. Goldblatt, H.: Studies on experimental hypertension. III. The production of persistent hypertension in monkeys (macaque) by renal ischemia. J. Exp. Med., 65:671, 1937.

7. Bell, E. T., and Pedersen, A. H.: The causes of hypertension, Ann. Int. Med., 4:227, 1930.

8. Butler, A. M.: Chronic pyelonephritis and arterial hypertension, J. Clin. Invest., 16:889, 1937.

9. Longcope, W. T.: Chronic bilateral pyelonephritis: Its origin and its association with hypertension, Ann. Int. Med., 11:149, 1937.

10. Longcope, W. T., and Winkenwerder, W. L.: Clinical features of the contracted kidney due to pyelonephritis, Bull. Johns Hopkins Hosp., 53:255, 1933.

11. Weiss, S., and Parker, F., Jr.: Pyelonephritis: Its relation to vascular lesions and to arterial hypertension, Medicine, 18:221, 1939.

12. Boyd, C. H., and Lewis, L. G.: Nephrectomy for arterial hypertension; preliminary report, J. Urol., 39: 627, 1938.

13. Leadbetter, W. F., and Burkland, C. E.: Hypertension in unilateral renal disease, J. Urol., 39:611, 1938.

14. Crabtree, E. G.: Hypertension in destructive infected unilateral lesions of kidney, Tr. Am. Genito-Urin. Surgeons, 31:299, 1938.

15. Nesbit, R. M., and Ratliff, R. K.: Hypertension associated with unilateral nephropathy, J. Urol., 43:427, 1940.

16. Barker, N. W., and Walters, W.: Hypertension associated with unilateral chronic atrophic pyelonephritis treated with nephrectomy, Proc. Staff. Meet., Mayo Clin., 13:118, 1938.

17. Bartels, E. C., and Leadbetter, W. F.: Hypertension associated with unilateral noninfected hydronephrosis treated by nephrectomy, Bull. Lahey Clin., 1:17, 1940.

18. Blackman, S. S., Jr.: Arteriosclerosis and partial obstruction of main renal arteries in association with "essential" hypertension in man, Bull. Johns Hopkins Hosp., 65:353, 1939.

19. Moritz, A. R., and Oldt, M. R.: Arteriolar sclerosis in hypertensive and non-hypertensive individuals, Am. J. Path., 13:679, 1937.

20. Rowntree, L. G., and Adson, A. W.: Bilateral lumbar sympathetic neurectomy in treatment of malignant hypertension, J.A.M.A., 85:959, 1925.

21. Peet, M. M.: Splanchnic section for hypertension; preliminary report, Univ. Hosp. Bull., Ann Arbor, 1:17, 1935.

22. Freyberg, R. H., and Peet, M. M.: The effect on the kidney of bilateral splanchnectomy in patients with hypertension, J. Clin. Invest., 16:49, 1938.

23. Fralick, F. B., and Peet, M. M.: Hypertensive fundus oculi after resection of splanchnic sympathetic nerves; preliminary report, Arch. Ophth., 15:840, 1936.

24. Crile, G.: Critical review of 822 operations on adrenal sympathetic system with special reference to essential hypertension, Illinois M. J., 70:115, 1936.

25. Page, I. H., and Heuer, G. J.: Surgical treatment of essential hypertension, J. Clin. Invest., 14:22, 1935.

26. Page, I. H., and Heuer, G. J.: Treatment of essential and malignant hypertension by section of anterior nerve roots, Arch. Int. Med., 59:245, 1937.

27. Adson, A. W., and Brown, G. E.: Malignant hypertension. Report of case treated by bilateral section of anterior nerve roots from the sixth thoracic to the second lumbar, inclusive, J.A.M.A., 102:1115, 1934.

28. Heuer, G. J.: The surgical treatment of essential hypertension, Ann. Surg., 104:771, 1936.

29. Crile, G.: Comparative anatomy and pathologic physiology of adrenal-sympathetic complex with relation to genesis and surgical treatment of essential hypertension, J. Michigan M. Soc., 35:694, 1936.

30. Brown, G. E.: Sympathectomy for early malignant hypertension, M. Clin. North America, 18:577, 1934.

31. Craig, W. M., and Brown, G. E.: Unilateral and bilateral resection of major and minor splanchnic nerves, its effects in cases of essential hypertension, Arch. Int. Med., 54:577, 1934.

32. Robinson, R. W., and O'Hare, J. P.: Further experiences with potassium sulfocyanate therapy in hypertension, New England J. Med., 221:964, 1939.

33. Fitz, R.: Kidney disease, New England J. Med., 221:143, 1939.

34. Scupham, G. W., de Takáts, G., Van Dellen, T. R., and Beck, W. C.: Vascular diseases: A review of some of the recent literature, with a critical review of the surgical treatment, Arch. Int. Med., 66:707, 1940.

35. Cerqua, S., and Samaan, A.: Cure of essential renal hypertension, Clin. Sc., 4:113, 1939.

36. deTakâts, G.: Revascularization of the nephrosclerotic kidney, Proc. Central Soc. Clin. Research, p. 49, 1939.

37. Bruger, M., and Carter, R. F.: Evidence of communication between renal and omental blood vessels following nephro-omentopexy for arterial hypertension in men; preliminary note, Am. J. M. Sci., 197:832, 1939.

PUBLIC HEALTH ADMINISTRATION*

W. K. SHARP, JR., M. D.†
NEW ORLEANS

The administration of a public health department requires the full-time services of properly trained and experienced public health workers. A public health program should include, in addition to generalized public health activities, plans for the care of the indigent and semi-indigent sick through the cooperation and active leadership of physicians in the community.

Progress has been made in disease prevention and promotion of public health through the protection of water and milk supplies, general environmental sanitation, communicable disease control and mass education since these activities are generally recognized as basic functions in well equipped health departments. It now appears that public health administrators have an additional opportunity, by broadening their scope of work, to include public health programs directed toward personal health.

Each state is autonomous in all matters relating to public health. Since the state, and not the Federal Government, is the sovereign power the administration of a public health program is primarily a state responsibility. Louisiana organized its first state board of health as early as 1855. It was a joint city and state board of health with powers extending over the state. This was one of the first established state boards of health in the United States and it was a direct result of a yellow fever epidemic in 1853-1854. The primary function of this board of health was the protection of the city and state from yellow fever.

COOPERATION BETWEEN U. S. P. H. S. AND STATE HEALTH DEPARTMENTS

Over half a century has passed since the Public Health Service was given authority to cooperate with state and local health departments in preventing the spread of diseases from one state to another. The records of the medical and health accomplishments of those brilliant years are now historic annals. For the past 25 years the Public Health Service has been engaged actively in cooperating with state and local health departments, and, to a limited degree, in studies and demonstrations in rural health work. Therefore, when Congress enacted the Social Security Act it indicated that the Federal Government had recognized the importance of a national public health program with joint responsibilities of federal, state and local agencies.

In view of the experience of the Public Health Service in cooperative activities with states, there has been nothing untried or unproved in the method of cooperating with State Health Departments, and the states themselves, in turn, have acquired knowledge and experience in cooperative public health procedures. It has been through this combined valuable experience and knowledge that the states have been enabled to make such splendid progress in the development of their own programs.

---

*Read before the sixty-first annual meeting of the Louisiana State Medical Society, New Orleans, April 22, 1940.

†From the United States Public Health Service.

"The work to be done under Title VI of the Social Security Act is not to be performed directly by the Public Health Service, but is to be carried out by, and administered under, the supervision of the state and local health authorities, under the authority of state and local laws and regulations, in the same manner as the regular activities of such authorities have been performed heretofore. All funds paid to the states become state funds, just as if they had been appropriated by the state legislatures. All persons employed within the states and local communities are state or local employees, selected, appointed, and paid by the state or local authorities."[1]

The first need in the development of any public health program is the organization of a state health department, supported by an active board of health, comparable to the board of directors of a bank or a strong governing body. The State Board of Health is the governing body and serves only on a part-time basis. The state health department consists of the state health officer and his staff and is known as the administrative organization. The personnel of the department of necessity should be efficient, carefully selected, highly trained and serve on a full-time basis. Such an organization needs to be small, compact and trained for the rendition of expert consultative service to local health departments. One of the specific requirements for the use of funds made available under Title VI of the Social Security Act is that state and territorial health departments, bureaus and divisions be strengthened so as to provide the parent organization with funds and trained specialists for leadership in tuberculosis, venereal diseases, cancer, vital statistics, engineering, nursing, dental, laboratory, and other comparable services.

Probably the next need in the development of a public health program is the organization and maintenance of full-time local (city-county-district) health departments. It is through such organizations that the local programs are to be developed. The ultimate responsibility of providing health service directly to the people is largely through full-time, well staffed, competent local health departments. These organizations are in close proximity to the existing problems. The state health department should provide financial assistance to local health services. Practically all full-time local health departments have been developed as a direct result of state leadership and financial assistance.

PERSONNEL

One of the most important factors in the success of a public health program is the fitness of those to whom the administration of the program is entrusted. Even though over 3,000 health officers, nurses, laboratory directors and other professional and technical personnel have been trained since the availability of funds under Title VI of the Social Security Act, there still remain large sectors of the United States where the very foundation of a health program has not been laid. Not more than half of the state health departments are adequately staffed or satisfactorily equipped to render the service which they alone can give, regardless of the extent to which local facilities may be developed. Less than one-third of the counties and a smaller proportion of the cities employ competent full-time health officers. Although recent federal participation under the Social Security Act has made possible a net gain of 623 counties, or about a 96 per cent increase under full-time health administration, and there are now eight states in which all the counties or districts are served by full-time health units, many of the existing health department activities are too thinly spread.

The number of counties in the United States at the present time under the administration of medical health officers, employed full-time, reached a new height of 1,371 in 1940[2] as compared with 557 such services in 1931.[3] At present 42 parishes in Louisiana have made provisions for such services as compared with 31 in 1931.[3] On January 1, 1935, there were 142 full-time health workers serving 34 parishes and on

January 1, 1940, there were approximately 300 workers serving 42 parishes. This represents over 50 per cent of the rural population of Louisiana.

In response to the demand for trained personnel so essential in the rapid expansion and organization of these health services, approximately 1,500 individuals in the United States and about 75 in Louisiana received public health training for positions with official health agencies during the current year. A total of $44,861,522 in state and local funds (exclusive of funds of large cities) was made available for public health services in those health jurisdictions where federal funds were budgeted four years ago. This, the Surgeon General of the United States Public Health Service points out: "It is seen that federal financial assistance has served to stimulate rather than decrease state and local responsibility toward the health of the people."

Perhaps the most significant progress during the past four years, however, has not been in terms of legislation, nor yet in terms of actual public health accomplishment, but in the development and presentation to the country of a far reaching national health program designed to deal, in a comprehensive way, with the whole program of health and medical care. With this recognition from our Federal Government, through the Social Security Act, enacted in 1935, and the Venereal Disease Control Act enacted in May, 1938, many states have planned a five to ten year program. No more significant or hopeful sign in the field of public health exists than the present interest in the problem displayed by the public, especially by women's organizations and lay groups in general, which means very definitely that public health has become a public responsibility.

We now find ourselves faced with some difficult problems in the field of administration, tuberculosis, venereal disease, pneumonia, cancer, mental health, industrial hygiene, expansion of maternal and child health services, and the medical care of the needy. Each of these special problems deserves special consideration, but the time allotted to this paper will permit the recognition of only a few of them.

ADMINISTRATION

A few of the main unsolved problems are:

1. Lack of security of tenure of office has made it very difficult to secure public health personnel. A merit system should in part solve this difficulty.

2. There is need for leadership both by the medical profession and public health personnel. Even though the public health schools are cooperating to a maximum degree, there is now, and will be for some time to come, an increasing demand for well trained professional public health workers.

When security of tenure of office is provided, the task of securing public health workers will be less difficult, and when proper personnel is secured, trained and qualified, the task of public health leaders will be lessened. Therefore, health workers can more wisely and scientifically develop public health programs in keeping with the community needs.

Frequently health officers, in planning a public health program, fail to give full recognition to well established administrative and epidemiologic principles. Since pneumonia, syphilis, tuberculosis, cancer and other diseases of this type constitute the real problem, why is it necessary to devote a large share of the public health workers' time and effort in combating a disease of minor public significance?

TUBERCULOSIS

In spite of our long campaign against the "Great White Plague", 70,000 Americans die of it annually. In any year there are probably 420,000 active cases, which, within their families, expose a million other persons to infection. Through this cycle alone there is maintained a tuberculosis population numbering 1,500,000. In the 15-45 year age group—men and women in their most creative years—tuberculosis mortality ranks second only to accidents. The disease works its greatest havoc among negroes, workers in certain occupations, and generally among persons of low income.[4] An aggressive program should, first of all, begin by defining the problem and should consist of case-finding, especially by x-ray examination of contacts to known cases, directed particularly towards persons in areas of economic need and in age groups among whom the incidence of the disease is high; adequate clinics under the direction of medical specialists for the examination of cases, especially contact cases; more extensive hospitalization of incipient cases; isolation and treatment (usually bedside) of open cases; and follow-up and rehabilitation of arrested cases. The early case-finding is educational to both the patient and the physician.

It is estimated by the Louisiana State Health Department that the average annual number of deaths from tuberculosis in Louisiana is approximately 1,400, which indicates that there are approximately 8,000 to 10,000 active cases in the State.

The State Health Department has established a diagnostic unit for the purpose of case-finding, diagnosis and hygiene instruction in connection with tuberculosis control. There is need for at least one additional case-finding unit and further stimulation should be given to augment nursing service, and a close cooperation of all official and non-official agencies crystallizing sentiment for increasing the bed capacity for tuberculosis cases.

VENEREAL DISEASES

Syphilis is a dangerous communicable disease, that attacks four times as many Americans as scarlet fever, ten times as many as diphtheria and more than one hundred times as many as infantile paralysis. "Every year one million Americans contract syphilis."[5]

At present there are approximately 50 venereal disease clinics operating in Louisiana, in 20 parishes. This represents about 50 per cent of the population of the state. There were approximately 91,000 visits to clinics during the last six months of 1939, and about 5,500 patients are constantly under treatment through the cooperation of the State Health Department, the medical profession, and the local full-time health departments in the state.

Today 19 states require examination for syphilis in applicants for marriage license, 17 provide for similar tests in expectant mothers. None of these laws is over three years old, most are only one or two.[6] Other state legislatures are considering similar laws.

PNEUMONIA

The 150,000 annual deaths from pneumonia could be easily reduced by more than 25 per cent if effective serums now available were generally used. Not one patient in 20 with pneumonia now receives such serum treatment. The explanation is simple. The prevention of pneumonia mortality is an expensive job that requires special facilities and a scheme for coordinating the resources of public agencies with those of practicing physicians. Present activities in this field are generally inadequate. Only eight of the 48 states have active programs for accurate diagnosis by typing and for free distribution of serum. In 15 states, no health department laboratory facilities are available for rapid typing of pneumococci. In 29 per cent of American cities of 100,000 population and over, no provision is made for it.[4]

The new and effective weapons for the control of pneumonia, anti-serum and sulfapyridine, are in demand. Recently a program to aid the physicians in Louisiana in curtailing this disease was inaugurated in those parishes where state district laboratories are located, Madison, St. Mary, Jefferson Davis, Rapides, Ouachita and Caddo, and in addition to this, materials are being provided the Charity Hospitals in New Orleans and Shreveport to supplement their work. This enables the State Health Department to secure records of the cases of pneumonia receiving therapy in these institutions. Apparently this type of program has met with enthusiastic interest on the part of the medical profession of the state.

MATERNAL AND CHILD HEALTH

Maternal and infant mortality statistics for 1938 have just been received. Remarkable reductions, as shown by the following table, have been attained in a period in which every state, in cooperation with the Federal Government, has been actively working for the improvement of maternal and child health conditions.

Year	MATERNAL MORTALITY Rate**		INFANT MORTALITY Rate*	
	U. S.	Louisiana	U. S.	Louisiana
1938	44.0	59.0	51.0	67.1
1937	49.0	72.0	54.0	65.6
1936	57.0	87.0	57.0	71.9
1935	58.0	79.0	56.0	69.4
1934	59.0	79.0	60.0	69.1
1933	62.0	84.0	58.0	70.1
1932	63.0	81.0	57.6	64.8
1931	66.0	86.0	61.6	65.9
1930	67.0	100.0	64.6	78.2
1929	70.0	99.0	67.6	74.0

*Deaths in the first year of life per 1,000 live births.
**Deaths per 10,000 live births.

The following table shows the per cent of deliveries for 1938 in hospitals with physicians in attendance, not in hospitals with physicians in attendance, and with midwives in attendance, for the United States and Louisiana.

	PHYSICIANS		MID-WIVES	NOT SPEC-IFIED
	In Hospitals	Not In Hospitals		
United States	48.0	41.8	9.5	0.6
Louisiana	31.1	32.6	36.2	*

*Less than 1/10 of 1 per cent.

There is urgent need for proper education of the public as it relates to public health values — the public health value of early diagnosis and treatment of cancer, syphilis, tuberculosis, and other diseases; and increased information should be brought to light concerning the true value of the periodic health examination. Similarly, the damaging effects to the public from quacks should be exposed.

The next chapter in public health services is now being written and will become a reality when, and not until, the public as a whole realizes the staggering economic loss due to preventable illness. According to the report of the Technical Committee on Medical Care, the cost of illness and premature death in this country amounts annually to about ten billion dollars, including in this total the combined costs of health services and medical care, loss of wages through unemployment resulting from disability and the loss of potential future earnings through death. On an average day of the year, there are 4,000,000 or more persons disabled by illness. Every year 70,000,000 sick persons lose over 1,000,000,000,000 days from work or customary activities.[8]

CONCLUSION

Let me make a plea for united medical and lay leadership so as to coordinate our public health and medical needs for the best interest of all concerned on a community wide basis.

REFERENCES

1. The Public Health Program Under Title VI of the Social Security Act. Supplement No. 126 to the Public Health Reports, United States Government Printing Office, Washington, D. C., 1937.
2. Unpublished data, Federal Security Agency, Washington, D. C., Jan. 1940.
3. Extent of Rural Health Service in the United States, 1927-1931, Public Health Reports, 46:2173, 1931.
4. The Nation's Health. United States Government Printing Office, Washington, D. C., 1939.
5. White, Robt. H.: Ostrich or eagle? Health Briefs, 17:2, 1940.
6. Brown, Earle G.: Some gains against syphilis, Nassau Health, 2:7, 1940.
7. Bureau of the Census, Department of Commerce, Vital Statistics—Special Reports 8:28, 1939, and 8:51, 1930.
8. The Need for a National Health Program, Report of the Technical Committee on Medical Care. Interdepartmental Committee to Coordinate Health and Welfare Activities, Washington, D. C., 1938.

DISCUSSION

Dr. R. W. Todd (New Orleans): Dr. Sharp has given us a clear picture of the progress made in health work in the United States, possible through the cooperative efforts of Federal, State, and local agencies. The point is made that the responsibility of proper health administration rests with the state health departments, since all Federal funds allocated to the states for health work become state funds, and all persons employed within the state and local units are state and local employees, selected, appointed and paid by state or local authorities. As a protective measure, the Federal agencies have required of us certain protection, in that we are required to use the merit system, and this is only to protect the Federal agencies,—that is by way of discussion. Recently, however, in the United States, the Public Health Service and the Children's Bureau, the two agencies that contribute to state health work, have made it compulsory for every state receiving these grants to set up a merit system for employees, new health workers, and qualify those already employed. All persons receiving their pay, in part or in full from Federal grants made to the states, come under the system. The requirements will eventually result in qualified persons being attracted to health work through improved standards of employment and tenure of office. Today, we are in need of medical men, we are seriously in need of them and do not have them. We have at least five health physicians today who would meet with the requirements. It has not been easy to get qualified health workers for our central staff, and the training of new health workers is being undertaken in one of our units that has been organized by special grants to serve as a field observation base. Further training of these individuals will be given in neighborhood schools of public health as quickly as possible. I may say that we set up approximately $20,000 for training them, and we have perhaps spent $50,000 in training personnel, so that we are giving qualified workers to carry on public health work.

With 42 of 62 parishes provided with health units, employing 300 to 400 health workers, we have gone a long way in Louisiana in promoting rural health work, but we still have 22 parishes without health units. By the way, Dr. Sharp mentioned that we were probably serving 50 per cent of our population; we are serving more than 70 per cent. Only 22 parishes in the state are not organized, and more than 70 per cent are being served with full time health units. We have not lost a single unit since 1928, and we have strengthened the units already existing.

Additions have been made to our central staff to promote tuberculosis work, crippled children's work; maternal and child health activities have been inaugurated in all our units; and a beginning has been made in pneumonia control. And I may say this, we have aided physicians in the treatment. There were between 700 and 1000 cases of pneumonia this past year, with a very marked reduction in mortality. But little or nothing has been attempted by the state health department for developing cancer, mental hygiene, industrial hygiene, or malaria programs. In view of the shortcomings of the state health departments, not only the fundamental health functions already introduced, but their care, I feel that we should improve our health administration along this line before attempting to qualify for administering a program of subsidized medicine for the indigent and semi-indigent, if and when a program is developed.

EARLY RESULTS IN THE TREATMENT OF CANCER OF THE SKIN BY THE METHOD OF CHAOUL

STAKELY HATCHETTE, M. D.
LAKE CHARLES, LA.

The destruction of cancer cells by any type of radiation therapy, no matter whether it be x-radiation or the gamma rays of radium, is a result of the fact that the absorption of radiation by living tissues causes changes in them that may vary in degree anywhere from temporary injury to the tissue cells to cell death. The amount of radiation required to destroy cancer, however, is often so great as to cause sufficient damage to the normal tissues surrounding the growth that they are injured beyond recovery. The ideal attainment toward which all of our efforts are directed is, obviously, to improve the results of radiation therapy to the point where a malignancy may be destroyed in its entirety and, at the same time, to give as little radiation as possible to the surrounding healthy tissues so that they may receive a minimum amount of damage.

In an attempt to make a very brief summary of the advances of radiation therapy, it may be said that in the beginning, before much was known concerning the biologic response of tissues to radiation, massive doses of rays were given. As time passed and knowledge increased, it was found that more and more radiation could be given with less harmful effects until Pfahler's "saturation method" evolved. This implied that the tissue should be irradiated to the limit of normal tissue tolerance (saturation) either by single or multiple doses, in the region of the malignant disease, and that the effect should be maintained by additional continuous or fractional irradiation over a period long enough to destroy all of the malignant cells or arrest their growth. The most recent outstanding contribution to the method of administering radiation is that advanced by Coutard, in which numerous, very small doses of radiation are given to the tissues. With this method of fractionated doses, the total dose which the tissue can stand without damage is many times greater than the massive dose such as was given in the early days of radiation therapy. The Chaoul method, with which this paper is concerned, is not so much a new method of dosage of the tissues, for dosage may be administered according to the massive technic, by following Pfahler's "saturation method", or by the method of Coutard. This newest method of treatment is largely concerned with a new device for the treatment of tissues and the method of its application.

The improved methods of administering radiation therapy have been based upon the advancements in the fields of radio-physics and radio-biology which have demonstrated that it is necessary to use hard, penetrating rays of high intensity in order to convey lethal doses into deep-seated growths, and that the opposite conditions should prevail in treating growths which extend only a centimeter or so beneath the surface. In the treatment of these superficial growths the primary object is to do as little damage as possible to the normal tissues underneath the tumor (the tumor bed), yet give a large, lethal dose into the tumor. In other words, a large dose should be given into the tumor, but the intensity of the beam of radiation should decline so sharply as to be relatively harmless to the healthy tissues underneath the tumor. This requires a low voltage or low intensity beam in which there is a very rapid decline in intensity so that only a small percentage depth dose is obtained.

Thus, it becomes obvious that high voltage x-radiation is not suited to the treatment of cancers of the skin because of the deep destructive powers of this type of beam and the superficial location and shallow extent of this type of cancer. Radium has been used in the treatment of superficial cancers and has given excellent results. In the light of recent advances in radio-biology it would seem that such results as are obtained with radium are not due so much to the shortness of the gamma rays obtained from this source, but rather to their distribution in the tumor, the proximity of the source of radiation, and the rapid decline in the depth intensity obtained by such proximity. Probably the most ideal distribution of radium consists in the introduction of radium needles or radon seeds within the tumor itself, in which case the source of irradiation comes from within the tumor. In such a case, the intensity of the radiation would follow the inverse square law and would decrease inversely with the square of the distance and, while the tumor would receive a large dosage, the rapid decline in the intensity of the radiation would tend to cause minimal harmful effects in the healthy tissues surrounding the tumor.

There are, however, certain disadvantages connected with the use of radium. The technics of its application are quite complicated, it is expensive, and, about the eyes and certain other parts of the body, it is extremely difficult to obtain adequate protection of the surrounding normal tissues. Because of the scarcity of radium and the fact that it was so expensive in that country, the Germans developed an x-ray tube that permitted a very short distance to be obtained between the target of the tube and the tissue and which gave a distribution of x-rays within tissues which was practically identical with the distribution of gamma rays of radium under similar circumstances.

PERSONAL EXPERIENCES

I have been using one of these x-ray machines permitting of a very short target-skin distance for a period of more than two years and the results obtained during this period have been highly gratifying. It has seemed to have certain advantages over radium in that it is simple to operate, the technic of its application is not at all difficult, it is inexpensive to use, its high "r" output allows the desired dosage to be given in terms of seconds rather than of hours and so permits of handling of more patients, and the x-rays generated have apparently been as lethal to tumor cells as the gamma rays of radium. The fact that the radiation delivered by the tube can be "spot-lighted" in various sized beams, depending upon the size cones used, has been a very great convenience, for it has not been nearly so difficult to obtain adequate protection of the surrounding normal tissues as has been the case where radium has been used under similar circumstances.

Such treatment has been given to 73 patients during the past two years. In this group of patients, 126 malignant lesions of the skin were treated. The results obtained to date have compared favorably with similar early results obtained by the writer through the use of radium in the treatment of skin cancers which have been comparable to the group herein reported (table 1). It is realized, of course, that two years is not a sufficient length of time from which definite conclusions might be drawn, but it is considered to be sufficient to permit of impressions being formed, and it is these impressions that are being reported. In the treatment of cancers of the skin, these early results would seem to indicate that the Chaoul type of therapy may be equally as effective as radium and, if time proves these impressions to be correct, it has certain definite advantages in the saving of time, the simple technic and the ease of protecting the surrounding tissues. It might also be pointed out that there is less danger to the operator's hands when the beam may be directed away from them than is the case in handling radium which sends gamma rays equally in all directions.

Five of the 73 patients were treated by giving them one single massive dose. This was done because these patients lived in other communities some distance away and because it would have been extremely difficult for them to make frequent trips to receive treatments. Thus, the massive dose has been given only in cases where it was considered necessary (table 1, nos. 1, 7, 31, 48, and 70). None of these patients have shown any evidence of return of the disease up to the present time, but they have shown more of a tendency toward the formation of telangiectases at the sites of the original lesions than has been the case in any of the other patients.

Another small group of six patients (table 1, nos. 4, 20, 27, 29, 38, and 40) was treated by giving doses of 500 "r" (in air) locally three times a week until a total dosage of 5000 "r" had been given. These patients have shown no tendency toward the formation of telangiectases, and scar formations have been no different from what might be expected from healing of similar sized lesions due to causes other than cancer and treated by other means. In fact, recent examinations of these patients showed the sites of some of the smaller lesions to be difficult to locate.

The remaining 62 patients were treated by giving them doses of 1000 "r" per day for four to five consecutive days. The number of treatments given has depended upon the coloring of the patient's skin and the size and pathologic diagnosis of the lesion treated. All of those lesions diagnosed as squamous cell carcinomas or malignant melanomas have received a minimum of 5000 "r", the size of the lesion or the type of the patient's skin not having been taken into consideration. Those patients with brunette skins and basal cell carcinomas smaller than one centimeter in diameter have been given 5000 "r", while those with this type skin and lesions one centimeter in diameter or larger have been given 4000 "r". Those patients with blonde skins and basal cell lesions have been given only 4000 "r", none of the lesions having been larger than one and one-half centimeters in diameter in this group. Up to the present time, there has been no essential difference in the appearance of the skins of those patients who received the 1000 "r" daily doses as compared to the small group of six patients who received the 500 "r" doses three times a week, so that all patients are now given the 1000 "r" daily doses. During the past two years there has not been a recurrence of a single lesion that was treated, but this may be due, of course, to the fact that two years can hardly be considered a follow-up period of sufficient length from which to draw conclusions.

SUMMARY

The x-radiation delivered by the Chaoul machine would seem to be almost ideal for the treatment of malignant lesions of the skin. The distribution of dosage within the tissues seems to be identical with that of the gamma rays of radium, the rapid decline in intensity spares the healthy tissues beneath the tumor from receiving a lethal dosage, and the technic is simple. Seventy-three patients have been treated by this method during a period of two years and uniformly good results have been obtained. While a sufficient time has not yet elapsed to warrant the formation of any conclusions, it is believed that the impressions obtained following the treatment of these patients is of definite value and that the next few years will see an increase in the number of patients treated by this new method.

TABLE 1

No.	Age	Sex	Date	Diagnosis	Duration	Result
1	55	M	1/31/39	Basal cell epithelioma of left ear	2 yr.	Healed
2	45	M	10/ 8/40	Squamous epithelioma lower lip	4 mo.	Healed
3	68	M	7/ 8/40	Basal cell carcinoma posterior aspect left hand	3 yr.	Healed
4	43	M	1/ 4/39	Basal cell carcinoma left ear	3 yr.	Healed
5	57	M	6/22/40	Malignant melanoma left side of face	4 wk.	Healed
6	67	M	4/ 3/39	Squamous epithelioma outer edge left external auditory canal	6 mo.	Healed
7	43	F	2/ 9/40	Basal cell carcinoma left side of face	3 mo.	Healed
8	68	F	9/ 4/39	Malignant melanoma right temple	6 wk.	Healed
9	78	M	5/11/39	Multiple basal cell carcinomas of face	6 yr.	Healed
10	80	M	7/22/39	Squamous epithelioma right temple	4 yr.	Healed
11	55	M	9/ 9/40	Multiple basal cell carcinomas of face and external ears	2 yr.	Healed
12	70	F	9/ 9/39	Basal cell carcinoma inner canthus right eye	9 mo.	Healed
13	83	F	7/11/40	Multiple basal cell carcinomas of forehead	3 yr.	Healed
14	57	M	7/29/40	Squamous epithelioma left temple	3 mo.	Healed
15	65	F	5/20/40	Multiple basal cell carcinomas of neck and right hand	1 yr.	Healed
16	57	M	2/ 5/40	Basal cell carcinoma of nose	1 yr.	Healed
17	72	M	2/28/39	Basal cell carcinoma left cheek	2 yr.	Healed
18	64	M	1/15/40	Basal cell carcinoma right cheek. Squamous cell epithelioma lower lip	3 yr. 5 mo.	Healed Healed
19	54	M	9/ 9/40	Squamous carcinoma lower lip	4 mo.	Healed
20	43	F	1/ 1/39	Squamous carcinoma upper lip	3 mo.	Healed
21	65	F	6/ 5/40	Squamous epithelioma lower left leg	2 mo.	Healed
22	69	F	3/18/39	Squamous epithelioma right temple	3 yr.	Healed
23	76	M	4/16/40	Basal cell carcinoma left nasofacial groove	6 mo.	Healed
24	56	F	5/29/39	Basal cell carcinoma right side of nose	1 yr.	Healed
25	69	M	8/ 5/40	Squamous epithelioma left side of face	6 mo.	Healed
26	55	F	11/13/39	Basal cell carcinoma left side of face	2 yr.	Healed
27	47	F	8/31/38	Basal cell carcinoma right side of nose	1 yr.	Healed
28	65	M	12/ 5/39	Basal cell carcinomas inner canthi both eyes	2 yr.	Healed
29	57	M	10/26/38	Basal cell carcinoma right cheek	2 yr.	Healed
30	65	F	7/ 8/40	Basal cell carcinomas left temple and forehead	2 yr.	Healed
31	71	M	12/ 6/38	Squamous epithelioma angle right jaw	4 mo.	Healed
32	65	M	8/ 5/40	Squamous epithelioma right temple	5 mo.	Healed

No.	Age	Sex	Date	Diagnosis	Duration	Result
33	45	M	4/ 9/40	Squamous epithelioma left side of chin	5 wk.	Healed
34	58	F	7/24/39	Malignant melanoma posterior aspect of neck	6 wk.	Healed
35	48	M	10/ 7/40	Basal cell carcinoma left ear	8 mo.	Healed
36	70	M	3/18/40	Basal cell carcinoma left temple	1 yr.	Healed
37	64	M	5/10/39	Basal cell carcinoma posterior aspect right ear	1½ yr.	Healed
38	79	F	10/18/38	Basal cell carcinoma left side of nose	2 yr.	Healed
39	53	M	3/11/40	Squamous epithelioma lower lip	4 mo.	Healed
40	69	M	10/29/38	Multiple basal cell carcinomas of face	4 yr.	Healed
41	63	F	9/ 7/39	Basal cell carcinoma right side of nose	10 mo.	Healed
42	76	M	3/18/40	Multiple basal cell carcinomas of face	3 yr.	Healed
				Squamous epithelioma of right temple	6 mo.	Healed
43	48	M	10/22/40	Basal cell carcinoma left cheek	1 yr.	Healed
44	42	M	9/ 9/40	Squamous epithelioma lower lip	6 mo.	Healed
45	43	F	2/26/40	Basal cell carcinoma right lower eyelid	6 mo.	Healed
46	82	F	4/16/40	Basal cell carcinoma right cheek	3 yr.	Healed
47	65	M	11/28/39	Basal cell carcinoma left side of nose	1 yr.	Healed
48	77	F	1/16/39	Malignant melanoma left face	6 mo.	Healed
49	56	M	10/18/39	Basal cell carcinoma outer edge left auricular canal	6 yr.	Healed
50	60	F	7/ 8/40	Multiple basal cell carcinomas left side of face	3 mo.	Healed
51	82	M	9/ 9/40	Basal cell carcinoma bridge of nose	9 yr.	Healed
52	68	F	2/ 6/39	Squamous epithelioma upper lip	3 mo.	Healed
53	75	M	4/15/40	Basal cell carcinoma outer canthus right eye	2 yr.	Healed
54	52	M	7/14/39	Basal cell carcinoma outer canthus left eye	6 yr.	Healed
55	65	M	10/ 2/39	Squamous epithelioma lower lip	3 mo.	Healed
56	65	M	12/ 4/38	Basal cell carcinoma outer canthus right eye	2 yr.	Healed
57	38	M	6/10/40	Squamous epithelioma lower lip	3 mo.	Healed
58	60	M	5/ 6/40	Basal cell carcinoma left ear	6 mo.	Healed
59	62	M	10/24/39	Basal cell carcinoma right side forehead	1½ yr.	Healed
60	64	M	7/10/39	Basal cell carcinoma inner canthus left eye	6 mo.	Healed
61	58	M	10/15/38	Basal cell carcinoma right ear	9 mo.	Healed
62	62	M	10/14/40	Basal cell carcinoma left side of nose	6 mo.	Healed
63	37	M	2/ 4/39	Basal cell carcinoma upper lip	6 wk.	Healed
64	48	M	6/10/40	Basal cell carcinoma left side of nose	3 yr.	Healed
65	64	F	9/10/40	Squamous epithelioma of scalp	6 mo.	Healed
66	46	M	9/18/39	Squamous epithelioma lower lip	3 mo.	Healed
67	80	F	6/17/40	Basal cell carcinoma right cheek	3 yr.	Healed
68	60	M	8/19/40	Squamous epithelioma lower lip	5 mo.	Healed
69	48	F	10/14/38	Basal cell carcinoma right side of nose	1 yr.	Healed
70	57	F	1/ 2/39	Basal cell carcinoma right cheek	2 yr.	Healed
71	55	F	2/27/39	Basal cell carcinoma left side of nose	6 mo.	Healed
72	40	F	1/10/39	Basal cell carcinoma forehead	6 mo.	Healed
73	76	F	9/30/40	Squamous carcinoma right side of face	6 mo.	Healed

STUDIES WITH ANTIGENS

IX. TREATMENT WITH PURIFIED EXTRACTS OF HOUSE DUST

B. G. EFRON, M. D.†
C. H. BOATNER, PH. D.‡
AND
PETER EVERETT, M. D.†
NEW ORLEANS

Skin tests performed with solutions of house dust purified according to the technic reported by Boatner, Efron, and Dorfman[1,2] showed that purified house dust was neither a "primary irritant" nor an irritating extract in the concentrations used. Reactions to skin tests performed with these extracts were found to be both allergic and diagnostic.[3,4]

PROCEDURE

This report is based on the results of treatment of 72 patients with asthma or hay fever, or both, whose symptoms were present from the first cool weather (usually in early September) to the onset of hot weather (usually in the latter part of June). All of these individuals were free of symptoms during hot weather. Each patient gave positive reactions to skin tests performed with purified house dust extracts. In all of these patients, treatment with hyposensitizing injections was continued for nine to eighteen months.

Solutions of house dust which had been purified by fractionation with organic liquids and by dialysis were used for injection. Concentrations of 2.00, 1.00, 0.50, 0.05, 0.005, and 0.0005 per cent solutions of purified house dust were used. Solutions were serial dilutions (made with normal saline containing 0.4 per cent phenol by weight) of 5.00 per cent solutions of purified house dust. Only the 5.00 per cent solutions were preserved in 50 per cent glycerin. Consequently, the 1.00 per cent house dust solutions contained 10.00 per cent glycerin by volume; the 0.50 per cent solutions contained 5.00 per cent glycerin by volume.

Hyposensitization was started with 0.10 c. c. of the 0.0005 per cent solution. The injection sites were the outer aspects of the arms. Injections were given subcutaneously as deeply as possible with 26-gauge, one-half inch needles. Doses were increased according to the patient's tolerance. Treatment was scheduled to be given every other day with the 0.0005 and the 0.005 per cent solutions; twice weekly with the 0.05 per cent solution; every four to five days with 0.50 per cent solution; every seven days with the 1.00 and 2.00 per cent solutions. The local reaction produced by an injection was used as the guide to the subsequent dose. Doses were increased when local reactions were small or absent, and were repeated when local reactions were large or when they lasted for twenty-four hours or more. An injection was not given until all of the local reaction produced by the previous injection had subsided. Whenever a constitutional reaction occurred, specific hyposensitization was postponed to at least twenty-four hours after the reaction had subsided. Injections were then resumed with a greatly reduced dose, and thereafter they were increased more gradually. All maintenance doses were given at seven day intervals.

DISCUSSION

The patients were given skin tests not only with purified extracts of house dust, but also with giant ragweed pollen, short ragweed pollen, Bermuda grass, Johnson grass, and Dallis grass pollen extracts. All reacted to the tests with house dust. Nine patients also showed positive reaction to the grass pollens. None reacted to the ragweed pollens. The grass pollen reactions were of no concurrent clinical significance, because these patients were free from symptoms during the major portion of the pollinating season of the grasses. In this locality, allergic symptoms that are precipitated by the inhalation of grass pollens occur from mid-May to mid-September, the most pronounced symptoms being produced in June, July, and August.

Meteorologic conditions act as exciting factors in precipitating attacks of asthma and hay fever. Sudden changes of weather and cool or damp weather were recognized by 43 patients in this series as adversely affecting their symptoms. Patients in whom specific treatment resulted in marked improvement were affected slightly or not at all by weather conditions which previously were unfavorable to them; those who were moderately improved were much better able to tolerate inimical weather than they had been prior to treatment.

---

†From the Division of Allergy, Touro Infirmary.

‡From the Department of Chemistry, Newcomb College, Tulane University, New Orleans, La.

The initial dose of 0.10 c. c. of the 0.0005 per cent solution was tolerated by all the patients in this study. Local reactions were frequent during the course of treatment. Eighteen systemic reactions of varying severity occurred in 12 patients. These reactions followed the administration of the following doses (in milligrams of purified house dust): 0.005, 0.015, 0.175 (2), 0.20, 0.50 (3), 0.75, 1.00 (3) 1.25 (4), 1.50 (2). Most of the systemic reactions occurred near the level of the maintenance dose. In three patients, the dose which produced a constitutional reaction when it was first administered produced a systemic reaction when it was again reached. In the other patients, the dose which produced a systemic reaction when it was first given did not cause constitutional symptoms when it was again reached.

The maintenance dose sufficient to protect the patient varied, as is shown in Table 1, in which are included only those patients who were markedly or moderately improved.

TABLE 1
MAINTENANCE DOSES OF MARKEDLY AND MODERATELY IMPROVED PATIENTS

No. cases	Dose in milligrams purified house dust*
1	.01
4	.10
3	.15
4	.25
4	.35
5	.50
1	.60
3	.75
7	1.00
2	1.25
3	1.50
5	1.75
4	2.00
3	2.50
1	2.75
4	3.00
1	3.25
1	3.50
3	4.00
1	4.50
1	10.00

* One c. c. of the 2.00 per cent solution contains 20 mg. purified house dust, one c. c. of the 1.00 per cent solution 10 mg., one c. c. of the 0.50 per cent solution 5 mg.

Patients complained of little or no discomfort from hypodermic injections of the purified extracts, because in a large majority of the cases, the amount of purified house dust necessary for the maintenance dose was given with the 0.50 per cent solution. This solution contains only 5.00 per cent glycerin when the 5.00 per cent solution of purified house dust is preserved in 50 per cent glycerin. Solutions containing 10 per cent glycerin or less cause little discomfort, and solutions containing 20 per cent glycerin are only slightly irritating.

Complete objectivity is not possible in the evaluation of the therapeutic results obtained. Non-specific factors, such as weather conditions, infections, and intercurrent diseases may influence the symptoms. The course of the disease itself may be remittent or intermittent. It is impractical, though not impossible, to obtain a control series. Estimates of improvement, made after specific therapy had been administered for four to eight weeks, were based on the following criteria:

Marked improvement—symptoms completely or almost completely relieved.

Moderate improvement—attacks very much less frequent or less severe, or both, and attacks readily brought under control.

Slight improvement—attacks less frequent or less severe, or both, and attacks not necessarily readily brought under control.

Attacks were considered readily controllable if they responded to oral medication, inhalation, or intranasal medication, or to a small hypodermic dose of epinephrin. Patients who required repeated hypodermic injections of epinephrin or intravenous injections of aminophyllin were not estimated as moderately or markedly improved, regardless of the reduced frequency of their attacks.

Table 2 shows an analysis of the therapeutic results. Patients markedly and moderately improved were considered as definitely relieved; those slightly improved or unimproved were classified as exhibiting unsatisfactory therapeutic results. Instructions to patients for the avoidance of house dust contact were intentionally omitted; therefore, these results represent not optimal treatment (which includes environmental control of contact with house dust and measures directed against other sensitivities), but the effect of specific hyposensitization only.

TABLE 2
ANALYSIS OF THERAPEUTIC RESULTS

Improvement	No. cases	Per cent	Standard error of percentage
Marked	37	51.4	5.9
Moderate	24	33.3	5.5
Slight	6	8.3	3.3
No	5	7.0	3.0
Total	72	100	

Allergic skin reactions were considered presumptive evidence of specific sensitization to house dust. Additional evidences of such sensitization are afforded by specific alterations in sensitivity, the amelioration or disappearance of symptoms after complete exclusion of house dust, exacerbation or reappearance of the manifestations after re-exposure to house dust, and the improvement of symptoms through specific therapy with house dust.[5]

Specific alterations in sensitivity to house dust (specific local and systemic reactions) were changes observed in patients of this series. Because of the ubiquitous nature of house dust, the effects of complete exclusion of house dust and of re-exposure to it cannot be determined. Specific hyposensitization produced amelioration of symptoms in a large majority of the patients in this series.

SUMMARY

1. Seventy-two patients sensitive to house dust were treated by specific hyposensitizing injections of purified house dust extracts.

2. During the course of treatment, local reactions occurred frequently. Eighteen constitutional reactions of varying severity occurred in 12 patients.

3. Hypodermic injections of purified house dust extracts caused practically no discomfort, although the concentrated extract was preserved in 50 per cent glycerin.

4. Definite relief of symptoms was obtained by hyposensitization only in 84.7 ± 4.2 per cent of cases (marked relief in 51.4 ± 5.9 per cent, moderate relief in 33.3 ± 5.5 per cent.)

5. House dust is established as an important etiologic factor in allergic diseases.

REFERENCES

1. Boatner, C. H., Efron, B. G., and Dorfman, R. I.: The purification of house dust extracts, Science, 91:389, 1940.

2. Boatner, C. H., Efron, B. G., and Dorfman, R. I.: Studies with antigens: III. The purification of house dust extracts, J. Allergy, 12:176, 1941.

3. Efron, B. G., Boatner, C. H., and Pabst, M. R.: Studies with antigens: VI. The significance of scratch test reactions to purified house dust extracts, J. Invest. Dermatol., 3:401, 1940.

4. Efron, B. G., Boatner, C. H., and Pabst, M. R.: Studies with antigens: The significance of reactions to intracutaneous tests performed with extracts of purified house dust (to be published).

5. Sulzberger, M. B., Dermatologic Allergy, Chas. C Thomas, Baltimore, 1940.

SULFANILAMIDE AND SULFAPYRIDINE

PHARMACOLOGY AND TOXICOLOGY*

ERWIN E. NELSON, M. D.†
NEW ORLEANS

In any discussion of chemotherapeutic agents there are several angles of interest. Of primary concern is of course the reaction of the invading organism to the therapeutic agent. It is essentially this phase that the other essayists will discuss this evening. Actually, I take it, they will speak of their clinical results. This means only that they will use their patients as indicators of the reactions of the invading organisms to the drug under discussion. In the few minutes allotted to me, I wish to consider some of the reactions of the host to sulfanilamide and sulfapyridine.

ABSORPTION

In reviewing the pharmacology of any substance we must be concerned with its entry into the body, how it is then distributed, what chemical or physical changes in it occur, and how it is gotten rid of. Sulfanilamide, though not a very soluble substance, is readily absorbed from the gastrointestinal tract. Little absorption occurs from the stomach, but absorption from the intestine is both fairly rapid and complete. Marshall, giving doses of 0.1 gm. per kilo in gelatine capsules to dogs, found as little as 1 per cent remaining in the intestine at the end of four hours. Blood concentration time curves in humans indicate a similar practically complete absorption in from three to four hours. This ease of absorption would, under most conditions, seem to eliminate the necessity for any form of parenteral administration. However the condition of the patient may require the use of other than the oral route. Sulfanilamide is sufficiently soluble that it may be given into the subcutaneous tissue in 1 per cent solution. More recently hypodermoclysis of a very dilute solution has been recommended. The absorption of sulfapyridine is not so satisfactory. All of the earlier studies emphasize its uncertainty, and the lack of parallelism between oral dosage and blood concentration. This difficulty of absorption has led to some misconceptions with respect both to effectiveness and to toxicity. Recently there has been introduced a sodium sulfapyridine for parenteral therapy. Because of the high degree of alkalinity of this preparation, vasomotor and respiratory depression are to be anticipated on intravenous administration. Sulfathiazole seems to resemble sulfanilamide rather than sulfapyridine.

---

*Read before the Orleans Parish Medical Society, June 10, 1940.

†From the Department of Pharmacology, Tulane University of Louisiana, School of Medicine.

DISTRIBUTION

After absorption these substances have a wide distribution throughout the body. Since sulfanilamide was introduced first, it has been most extensively studied. After absorption it has a distribution similar to that of urea or of alcohol, being approximately proportional to the water content of the tissues. It occurs in all the secretions, saliva, gastric juice, pancreatic juice, tears, in the milk, in the secretion of the cervical glands, and in the cerebrospinal fluid. It passes the placenta and occurs in fetal blood. In a general way sulfapyridine is distributed in a similar fashion. The experimental findings are not so regular, and in one respect there seems to be a definite difference. Marshall and Litchfield have found some concentration of sulfapyridine in both the liver and the lungs. The significance of this observation is not yet apparent.

EXCRETION

The absorbed sulfanilamide or sulfapyridine circulates in the blood in part in the free form, partly acetylated. This is true both for man and for most of the laboratory animals, except the dog, which apparently lacks the ability to acetylate these compounds. There is some evidence that acetylation occurs in the liver. The acetylated compounds are apparently inactive therapeutically. Aside from this partial conversion there is no evidence of a capacity of the body to break down or destroy sulfanilamide or sulfapyridine. Excretion is to all intents and purposes solely by the kidneys, and recovery of administered material is practically complete.

This acetylation might be looked on as a detoxication process, in which case the derivatives should be less toxic than the parent substance. Marshall and Litchfield showed that administration of the sodium salt of acetylsulfanilamide to two dogs in amounts sufficient to raise their blood levels to the very high values of 35 and 40 milligrams per cent respectively, was without effect. Similar concentrations of the sodium acetylsulfanilamide were fatal. Acetylsulfapyridine is very insoluble, and as the glomerular filtrate from the blood plasma is concentrated in its passage through the tubules, crystals are deposited, leading to serious and even fatal disturbances of renal activity. Many reports, both clinical and experimental, have called attention to this feature which is characteristic of sulfapyridine.

MODE OF ACTION

So much for the absorption, distribution, and excretion. More interesting than these features, would be an explanation of the mode of action if it were possible to give one. It seems to be the consensus at present that the fundamental action is bacteriostatic rather than bactericidal. It is generally held that the defense mechanisms of the host must participate in the recovery from infection, but there is little evidence that these mechanisms are directly stimulated by the drug. We cannot review at this time the work that has given rise to this conception. If correct, however, it certainly justifies the clinical practice of attempting to get a high blood concentration early, and helps to explain why such treatment is most likely to be effective.

TOXICITY

Coming now to the matter of toxicity, I take it that my task ideally would be to group and explain the various clinical observations that have been made. Unfortunately it is not yet possible to do this. It has always been a drawback in the search for chemotherapeutic agents, that the host as well as the invaders, be they bacteria, protozoa, or worms, is susceptible to the action of the poisons used. As a matter of fact, until the introduction of the group under discussion, the difficulty has been that the tissues of man have been more susceptible to possible therapeutic agents than the organisms of plant nature from whose presence he might be suffering. While sulfanilamide and its relatives do for the first time make possible the effective treatment of bacterial types of invaders, there is still evidence that the therapeutic agent is not completely specific for the invader.

The long list of toxic actions of sulfanilamide and its relatives I shall not review. The clinical manifestations of toxicity are better known to you than to me. Laboratory investigations and clinical impressions with respect to the relative toxicity of sulfanilamide as compared to sulfapyridine have been complicated by failure to recognize the differences in absorption noted above. The earlier reports on sulfapyridine indicated a lesser toxicity than that of sulfanilamide. However, when the two drugs are given to the production of equivalent blood concentrations, it seems that sulfapyridine is clearly the more toxic of the two. The most satisfactory study of the clinical incidence of toxic effects that has come to my notice is that of Brown, Thornton, and Wilson, in a recent article in the Journal of the American Medical Association. Two series of 100 patients each, treated essentially in the same fashion as indicated by the blood concentrations, were compared with respect to the frequency and severity of symptoms. Toxic manifestations were classified as mild and severe. Of the mild symptoms, anorexia, nausea, vomiting, were much more frequent after sulfapyridine; dizziness, headache, cyanosis, after sulfanilamide. Of the more severe manifestations, delirium, leukopenia and granulocytopenia, were more frequent after sulfapyridine. The symptoms referable to the kidney, oliguria, hematuria, anuria, pain in the loins were restricted practically to sulfapyridine. Anemia, drug rashes, drug fever, occurred with more or less equal frequency after the two substances.

CLASSIFICATION AND TOXIC SYMPTOMS

The symptoms just enumerated by no means include all that have been noted. It will perhaps serve better to attempt to make some sort of classification. Dizziness, headache, ringing in the ears, vertigo, feelings of depression,—these can all be referred to an action on the central nervous system. The nausea and vomiting that may be so disturbing are generally believed in part at least to be due to a central action. Parenteral therapy does not completely avoid them. On the other hand the incidence of these symptoms is said to be reduced by suspending sulfapyridine in mucilage of tragacanth. This would seem to indicate that local irritation played a part. For the reputed effect of nicotinic acid in reducing such unpleasant effects there seems to be no explanation. Peripheral neuritis, reported occasionally, has also been produced experimentally in dogs.

Most important of the toxic actions are probably those upon the blood. For the agranulocytosis there seems to be no satisfactory explanation. It has not been possible, so far as I am aware, to produce this condition in experimental animals either with the sulfanilamide group or with other substances such as amidopyrine. In the case of the anemias, it is fairly clear that repeated administration is apt to involve to some degree the red cell forming tissue. Recently Richardson has reported from Marshall's laboratory that an anemia with reticulocytosis can regularly be produced in white mice by feeding either sulfanilamide or sulfapyridine in amounts sufficient to maintain a blood level of the order of that used in human therapy. In this particular work sulfanilamide was found about twice as toxic as sulfapyridine.

As to the other severe reactions, drug fever, dermatitis, hepatitis, the pharmacologist has little to offer. It has been possible to sensitize some of the laboratory animals to some members of the group; perhaps some of these reactions may fall in this group. Others are perhaps expressions of real idiosyncracy. The renal reactions I have mentioned above. Their explanation seems fairly clear, and there is at least a suggestion as to a means of avoiding them, that is, maintenance of a free flow of dilute urine by administration of large amounts of fluid.

As Long and Bliss have pointed out, if fear of the toxic reactions has prevented the indiscriminate use of these drugs, then it has had a beneficial action. To this extent and to this end the possibility of occurrence of untoward effects should not be minimized. On the other hand, for certain patients these drugs have certainly been lifesaving. To deny properly selected patients the help of specific therapy because of these possibilities is as irrational as promiscuous therapy without thought for the consequences.

CONCLUSION

I believe that every effort should be made to restrict the use of these potent substances to administration by the medical profession. At the same time I believe we owe it to the public to make certain that they understand that such an attitude is an unselfish one—one intended solely to insure that these powerful agents be properly administered.

EXFOLIATIVE DERMATITIS FROM SOBISMINOL MASS BY MOUTH

A CASE REPORT

U. S. HARGROVE, M. D.
BATON ROUGE, LA.

Sobisminol mass, the newest antisyphilitic remedy, has been in general use only a short while. It is said to be an efficient antisyphilitic drug taken by mouth as well as when given hypodermatically. As it will probably be widely used by the profession at large, it is, I believe, important that its possible dangers be pointed out. For this reason, I am reporting this case of exfoliative dermatitis.

CASE REPORT

Mrs. H. B., a white female, aged 57, was first seen April 18, 1939. History is as follows: About 27 years ago the patient took two shots of old salvarsan, having been diagnosed as having syphilis. No further treatment was taken until 1938, at which time she developed a vaginal ulcer. A Wassermann was taken, which proved strongly positive. At this time she took three shots (probably neoarsphenamine) and following the third shot, she developed what, from her description, was an extremely severe case of exfoliative dermatitis. She stated that her entire body was swollen and covered with a weeping exudate, with crusts, fissures, and severe pruritus. She was sick for three months, but finally recovered.

When I first saw her on April 18, 1939, she presented more than a dozen ham-colored, serpiginous lesions of the forearms and body, which appeared to be characteristic syphilitic lesions. The Wassermann was strongly positive. The cardiovascular and nervous systems were apparently uninvolved. Patient was given one shot of thiobismol intramuscularly. The following day she had a marked urticarial and erythematous reaction of the hands, feet, and face, with marked itching. This reaction subsided in one week. No, or slight, exfoliation occurred. The patient was then put on mercury rubs, and the skin lesions rapidly disappeared. She used the rubs from then until August, at which time she discontinued them.

On April 20, 1940, she presented a chronic ulcerated lesion of the pharynx. A biopsy showed probable gummatous lesion. Bismuth subsalicylate in oil was then started, partly because of patient's serious objection to mercury rubs. A total of six doses, 1 c. c. at weekly intervals, was given, along with iodides by mouth. Following the sixth dose, she developed fever, urticaria, and a more or less generalized erythema, with later exfoliation. The patient was not very ill at this time.

Following publication of articles in the Journal of the American Medical Association on sobisminol mass, it was decided to give this a trial, as the patient still objected to mercury rubs. On July 16, 1940, she began taking one capsule sobisminol mass three times a day, and kept this up until July 29, when she discontinued it because the capsules melted. On August 2, she presented slight edema and erythema of the fingers. These symptoms and findings increased until on August 14, she had extensive lesions of both feet and legs, both hands, lips, and eyes. There was marked edema with a weeping exudate, the formation of crusts, fissures, and severe itching. Treatment consisted of local applications and administration of large doses of sodium thiosulfate. By August 24, the acute symptoms had subsided, and extensive exfoliation was in progress. The urine at no time showed any marked pathologic variations.

COMMENT

A case of exfoliative dermatitis developing after taking sobisminol mass by mouth fortunately is apparently terminating favorably. This instance serves as a warning that a patient sensitive to bismuth intramuscularly may likewise be sensitive to sobisminol mass by mouth.

POSTPARTURIENT INFECTION WITH PROBABLE ENDOCARDITIS, PULMONARY INFARCTION, CEREBRAL EMBOLISM, AND BILATERAL THROMBOPHLEBITIS OF THE INTERNAL SAPHENOUS VEINS

REPORT OF A CASE WITH RECOVERY

HUGO T. ENGELHARDT, M. D.†
AND
O. J. LABARGE, M. D.†
NEW ORLEANS

Although the other complications resulting from postparturient and postabortal infections of the genital tract have been discussed in great detail in our North American textbooks and literature, the pulmonary and cardiac complications following such infections have received surprisingly little attention. That such complications are not uncommon or unknown, however, is indicated by the attention given these topics by foreign authors. Gonnet, Boussillon and Joly[1] have presented two cases of severe postabortal pulmonary infarction with a thorough discussion of the symptomatology in these cases, while Ugarte and Larenas[2] have reported their observations in thirty-seven cases of pulmonary complications occurring early in the puerperium. Ramirez, Cardenas and Rodriguez[3] found anatomic evidence at postmortem of an extensive thromboendocarditis in three of twelve cases of fatal puerperal sepsis and expressed the opinion that, in all probability such pathologic findings were not uncommon in cases of severe generalized puerperal infections. Hellner[4] observed multiple small abscesses in the aortic wall in a case of septic abortion which terminated abruptly as a result of an intrapericardial aortic rupture with a fatal cardiac tamponade. It is our purpose to present at this time a case of postparturient pelvic infection with probable endocarditis, pulmonary infarction, cerebral embolism, and bilateral thrombophlebitis of the internal saphenous veins together with a brief discussion of the salient factors in the case.

CASE REPORT

Mrs. F. G., 28 year old American born housewife of Italian extraction, primipara, was admitted to the obstetric service of the Charity Hospital of Louisiana at New Orleans, on November 13, 1939, at nine-fifty in the morning in a state of active labor. She stated that for two days prior to admission, fetal movements had been absent and that a watery fluid had been draining from the vagina for twelve hours previous to admission.

A review of her outpatient record indicated that she was admitted to the obstetric clinic on June 29, 1939, was observed at regular intervals after that date, and that her preparturient progress up to the time of her admission to the hospital had been uneventful. The estimated date of delivery was November 20, 1939.

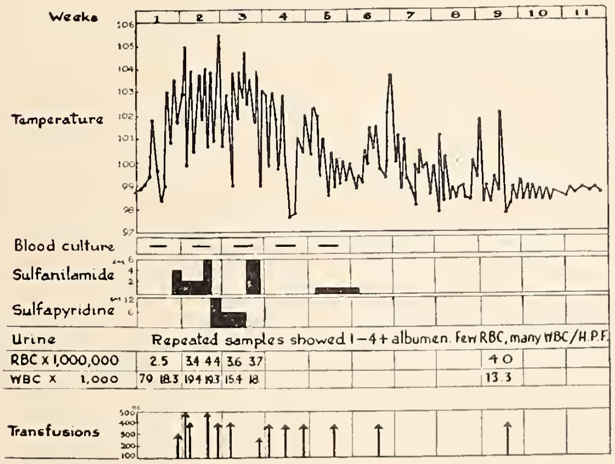
On admission to the hospital she had a temperature of 98.6° F., a pulse rate of 84 per minute, a blood pressure of 130/86, and the general physical examination was essentially negative. The pelvic measurements were within normal limits. Fetal heart sounds could not be heard and fetal movements were absent. Uterine contractions were irregular, at five to ten minute intervals and lasting from thirty seconds to one minute each time. On direct inspection, the cervix uteri was "bilaterally lacerated," moderately eroded, and a cloudy, watery discharge was draining from the cervix which was only slightly dilated. On direct questioning the patient denied previous pregnancies and instrumentation of any kind.

---

†The Department of Medicine, School of Medicine, The Tulane University of Louisiana and the Charity Hospital of Louisiana.

The patient continued in labor without any apparent progress until one o'clock in the afternoon of November 14, 1939. At that time another vaginal examination was performed (with careful aseptic precautions). The cervix was soft and partially dilated so further expectant treatment appeared to be indicated. At four in the afternoon the patient had a moderate chill, a sudden rise of temperature to 101.6° F. and vomited several times. No progress from an obstetric viewpoint was in evidence at seven o'clock in the evening and the patient was becoming discouraged and exhausted so delivery of a badly macerated fetus was accomplished by a breech extraction and forceps delivery of the after-coming head. Anesthesia consisted of sacral block with 40 c. c. of 1 per cent procaine solution and about 30 minutes of nitrous oxide-oxygen inhalations. A right medio-lateral episiotomy expedited delivery. The placenta was delivered intact. The obstetric record indicates that an excessive amount of hemorrhage occurred during delivery but that the blood pressure after delivery was 104/60 and the pulse was of "good quality." A program of chemotherapy with sulfanilamide was started immediately after delivery and the patient was transfused with 300 c. c. of citrated blood.

On November 17, 1939, the notation was made that the lochial discharge was "very foul" in character, and from that date onward, the temperature curve was of a septic type. (See illustration.)



Graph 1.

Blood transfusion was repeated on November 20 and on November 21. On November 21, a long blowing systolic murmur was heard over a diffuse area about the cardiac apex and the liver was palpable (but not tender) to a level of three fingers' breadths below the right costal margin. The patient was not jaundiced, and, although her expression was of the "anxious" type, she did not appear to be acutely ill.

At seven-fifteen on the morning of November 22, the patient suddenly developed a severe pain in the right posterior thorax just below the angle of the scapula. The pain was severe, persistent, and aggravated by inspiration. There was no cough and no sputum. A diminished bronchovesicular breathing with accentuation of the whispered voice was evident over the painful area, but no friction rub could be heard. In the late afternoon of the same day the patient had a severe chill with a rise of temperature to 104.2° F. The pulse rate increased to 110 per minute and a rough blowing systolic murmur (in addition to the long systolic apical murmur previously noted) became evident over a diffuse area at the base of the heart. The cardiac sounds were present but of poor quality. Except for generalized tenderness, a pelvic examination was essentially negative. Consultation was obtained with the Department of Medicine and the patient was transferred to the medical service, where she was observed by us.

No change was observed in her condition on November 23. On November 24, the episiotomy wound opened spontaneously and discharged a considerable amount of purulent material. In the afternoon of November 25, the pain in the right chest became greatly accentuated and her respiration was of a very labored character with marked pain on inspiration. At eight o'clock in the evening she was extremely ill with a temperature of 104° F., a pulse rate of 132 per minute and a respiration of 30 per minute. The cardiac rhythm was galloping in character with a split P_2 and both basal and apical systolic murmurs, as already noted. An area of dulness and bronchial breathing with moist inspiratory rales extended from the angle of the right scapula to the right base and anteriorly as far as the right anterior axillary line. Expansion was markedly limited at the right base. Roentgen ray examination disclosed a large wedge-shaped area of consolidation in the right middle lobe with a marked haziness of the surrounding lung tissue and the entire right lower lobe. These findings, together with the clinical picture, strongly suggested the presence of an extensive infarction of the right middle lobe and an extending secondary basal pneumonic process. No abdominal tenderness could be elicited and another pelvic examination gave no additional information.

In the period from November 25 to December 12, 1939, the patient was acutely ill and demonstrated little improvement despite several blood transfusions. The physical findings in the right chest persisted and, due to the septic type of temperature (see illustration), an encapsulated abscess of the right middle lobe was suspected, but two attempts at aspiration (December 5 and 7, 1939) failed to recover any purulent exudate. The cardiac murmurs persisted and became more pronounced, but petechial hemorrhages were not observed and repeated blood cultures were negative. From December 7 to 28, 1939, the patient received a number of additional blood transfusions and made a slow but gradual improvement.

On the morning of December 28, 1939, the patient complained that she was unable to move her left upper extremity and that the entire left arm was numb and tingling. Examination disclosed a paralysis of the left lower face, a deviation of the tongue to the left, a complete flaccid paralysis of the entire left arm and a marked loss of sensation over the entire left arm. Her sensorium was entirely clear and no other change was noted in her condition. A sudden embolus, lodging in the right internal capsule, seemed the most logical explanation for the change in the clinical picture. An acute thrombophlebitis of the left internal saphenous vein developed on December 30, 1939, with a concomitant edema of the entire left lower extremity. A marked inflammation and tenderness was evident over the course of the affected vein. These developments seemed to presage the death of the patient, but instead her clinical condition gradually improved. On January 4, 1940, she was afebrile all day for the first time since her delivery and the condition of the left leg showed marked improvement. The paralysis of the left face and tongue had disappeared and muscular function was definitely returning to the left arm. The cardiac signs were less pronounced, but the bronchial breathing, the crepitant inspiratory rales, and the marked dulness were still present at the right base. An uneventful improvement continued until January 11, 1940, when she complained of a severe pain over the inner surface of the right thigh and developed a condition quite analogous to that already described as involving the left leg. This complication responded promptly to treatment and the patient was again afebrile on January 15, 1940. From that date onward her convalescence was uneventful and she was discharged from the hospital on January 26, 1940. At that time the cardiac murmurs had practically disappeared, but bronchonvesicular breath sounds and crepitant inspiratory rales were still present over the middle lobe of the right lung. The outpatient clinic reports indicate that the patient is in apparent good health at the date of this report (August 23, 1940).

DISCUSSION

It is of particular interest in this case to note that the patient's prenatal progress had been uneventful and that on admission to the hospital, the physical examination revealed nothing abnormal except that (1) fetal movements and fetal heart tones were absent; (2) the membranes had ruptured; and (3) the cervix was bilaterally lacerated and eroded. After the vaginal examination, which was followed in three hours by a chill and a sudden rise in temperature, an episiotomy was done and a macerated fetus was delivered by breech extraction with forceps to the after-coming head. This was accompanied by what was described as an excessive amount of hemorrhage. Whether or not it was the vaginal examination, instrumentation, and severe hemorrhage incident to the delivery which began the series of events which followed is hard to say. It is not beyond the realm of possibility that this patient had been suffering from a chronic cervicitis for some time, and that the instrumentation and vaginal examination served to light up a smoldering focus with an extension of the process into the endometrium and the uteropelvic veins. It should be noted that extensive infection of the episiotomy wound occurred, and this fact must be considered as a possible etiologic cause for the subsequent developments.

Following delivery, the patient's temperature gradually rose and the fever curve became remittent in type. In view of the murmur heard over the base and apex, together with the fever, it is quite probable that she had an endocarditis. Ramirez et al.[3] have reported three cases with very similar histories and physical findings with an endocarditis of a similar character in each case at postmortem.

The sudden pain in the right chest, followed by signs of consolidation, indicates the development of a pulmonary infarct. Whether it was due to an embolus arising from the damaged endocardium or directly from the infected pelvic veins cannot be determined with any degree of certainty. In view of the subsequent exents, the former seems to be the most likely occurrence.

An endocarditis, then, would adequately explain the series of events which led to the diagnosis of an embolus lodging in the internal capsule on the right side. This was followed by an involvement of both internal saphenous veins.

When the clinical picture is viewed in its entirety, it appears quite evident, despite the negative blood cultures, that we were dealing with a blood stream infection of a relatively low virulence.

The noteworthy thing is that, despite this series of complications, the patient recovered and is now well. There is no question but that the repeated transfusions were responsible to a large extent for the recovery. It should also be noted that the patient received, in the way of chemotherapy during the height of the disease, large doses of sulfanilamide and sulfapyridine with little or no clinical improvement.

The fact that on discharge there were still some crepitant rales is apparently not unusual in such a case as this. According to Ugarte and Larenas,[2] complete absorption of the infarct occurred in only 34 per cent of their cases.

The often repeated admonition—to avoid unnecessary surgical and obstetrical intervention—is emphasized by the series of complications in this case.

SUMMARY

A case of postparturient infection with probable endocarditis, pulmonary infarction, cerebral embolism and bilateral thrombosis of the internal saphenous veins with recovery is reported. Apparently no similar case is on record in the recent North American literature, although similar cases have been reported in the foreign journals, particularly those of French, German, and South American origin.

REFERENCES

1. Gonnet, Boussillon, and Joly: Two cases of severe infarctions after abortion, Bull. de la Soc. d'obstet. et de gynec. de Paris, 25:256, 1936.
2. Ugarte, G., and Larenas, A.: Pulmonary complications in puerperal infections, Bol. de la Soc. chilena de obstet. y ginec., 4:125, 1939.
3. Ramirez Olivella, J., Cardenas Pupo, and Rodriguez Feo, J. A.: Thrombo-endocarditis in puerperal infections, confirmed anatomically in the years 1934 to 1937 in the Municipal Maternity Hospital, Vide nueve, 41:134, 1938.
4. Hellner, F.: Rupture of the aorta in a case of septic abortion, Zentralbl. f. Gynak., 60:2723, 1936.

SPONTANEOUS MEDIASTINAL EMPHYSEMA

EDWARD MATTHEWS, M. D.[†]
NEW ORLEANS

Mediastinal emphysema has long been recognized as a complication of disease or injury of the lung, and in 1888, Muller described as physical signs indicative of this condition the disappearance of cardiac dulness to percussion and the presence over the precordium of bubbling crepitations synchronous with the heart beat.[1]

It was, however, Hamman of Baltimore who first called attention to the clinical picture resulting from the spontaneous occurrence of mediastinal emphysema.[2, 3, 4] Hamman has observed seven patients with this syndrome; including the case herein described there are now on record sixteen case reports of this condition.[2-10]

The patient, usually a male between 15-40 years of age, is seized while at rest or during slight activity with a severe pain in the left side of the chest or beneath the sternum, with perhaps radiation to the arms. This pain may disappear in a few hours or may last for days. The attack simulates one of coronary occlusion, except that there are usually no signs of shock and no subsequent fever, leukocytosis, or electrocardiographic changes. In most cases, there is heard by the patient or even by others in the room, a noise synchronous with the heart beat.

Examination reveals two characteristic physical findings: on percussion, the absence of cardiac dulness, and on auscultation, the presence of bubbling, crackling, crepitant sounds over the precordium. In addition, there may be found other evidences of escape of air from the lung, such as subcutaneous emphysema of the neck (six of 16 cases), and pneumothorax (eight of 16 cases, all on the left side). Roentgenograms of the chest have shown in seven of 15 cases pockets of air adjacent to the heart shadow.

No treatment has been necessary except for bed rest, and, in some patients, opiates for the relief of pain. Recovery has ensued in all instances.

The probable explanation of the genesis of spontaneous mediastinal emphysema is contained in the experiments of Macklin.[11]

[†] From the Department of Medicine, School of Medicine, Tulane University, New Orleans, Louisiana.

In overinflating the lungs of cats by pumping air down the trachea, rupture of alveoli was noted, followed by dissection of air along the sheaths of blood vessels to the mediastinum, whence it escaped into the subcutaneous tissues of the neck, or, by rupture of the mediastinal pleura, into the pleural cavity. Mediastinal emphysema could not be produced by injecting air under pressure into the pleural cavities. Apparently the sequence is: alveolar distention and rupture, interstitial emphysema of the lung, mediastinal emphysema, and then, pneumothorax or subcutaneous emphysema. Hamman has further suggested that this mechanism may afford a better explanation for some cases of spontaneous pneumothorax than does the theory of ruptured subpleural bleb.

CASE REPORT

A. B., a 25 year old colored male laborer, was admitted to Charity Hospital on December 5, 1940, complaining of pain in the left chest of three days' duration. He had enjoyed excellent health until one month before admission, at which time he developed what he described as a "chest cold," with cough and expectoration of small amounts of whitish sputum. Three days before admission, he noted gradual onset of pain in the chest. This pain was not preceded by any particular effort or exertion. It was localized in the left anterior chest and was somewhat aggravated by breathing. The pain increased in severity and there developed moderate shortness of breath.

Examination disclosed a robust colored man who complained of some pain during the first day in the hospital but who thereafter was ambulatory about the ward and in no distress. The temperature, pulse, and blood pressure were normal throughout the twelve days of hospitalization. Chief interest centered in the examination of the chest. Over the entire left side there were decreased fremitus, increased resonance to percussion and absent or distant breath and voice sounds. There was suggestive deviation of the trachea to the right and there was resonance in the usual area of cardiac dulness. The findings were considered to be indicative of left pneumothorax and roentgenograms confirmed this diagnosis, showing 80 per cent collapse of the left lung with, however, little or no displacement of the mediastinum. Over the precordium and as high as the second intercostal space there was heard a curious sound. It was crepitant in quality with a to-and-fro character synchronous with the phases of the heart beat. Several observers agreed that it was unlike the usual pericardial friction-rub. It was heard best with the patient recumbent and with the breath held in expiration. It was at first of moderate intensity; it gradually decreased over a period of 12 days but was still audible when the lung had re-expanded to an estimated 20 per cent collapse. There was no evidence of subcutaneous emphysema and no free air in the mediastinum was seen in A-P roentgenograms. The nature of the abnormal sounds heard over the precordium, however, was such as to justify a diagnosis of spontaneous mediastinal emphysema, with spontaneous left pneumothorax.

CONCLUSIONS

Spontaneous mediastinal emphysema, often accompanied by pneumothorax and subcutaneous emphysema, is a benign clinical entity characterized by pain in the chest similar to that of coronary occlusion. The physical findings aiding in its recognition are: the absence of precordial dulness to percussion and the presence of a loud crepitant sound synchronous with the heart beat. Roentgenograms may reveal pockets of air adjacent to the heart.

REFERENCES

1. Muller, quoted by McGuire & Bean (8).

2. Hamman, L.: Remarks on the diagnosis of coronary occlusion, Ann. Int. Med., 8:417, 1934.

3. Hamman, L.: Spontaneous interstitial emphysema of the lungs, Tr. A. Am. Physicians, 52:311, 1937.

4. Hamman, L.: Spontaneous mediastinal emphysema, Bull. Johns Hopkins Hospital, 44:1, 1939.

5. Lister, W. A.: A case of pericardial knock associated with spontaneous pneumothorax, Lancet, 1:1225, 1928.

6. Scott, A.: Significance of anginal syndrome in acute spontaneous pneumomediastinum, Lancet, 1:1327, 1937.

7. Wolferth, C. C., and Wood, F. C.: Angina pectoris, Med. Clin. North America, 13:947, 1930.

8. McGuire, J., and Bean, W. B.: Spontaneous interstitial emphysema of the lungs, Am. J. Med. Sci., 197:502, 1939.

9. Morey, J. B., and Sosman, M. C.: Spontaneous mediastinal emphysema with report of a case associated with spontaneous pneumothorax, Radiology, 32:19, 1939.

10. Caldwell, H. W.: Spontaneous mediastinal emphysema, J. A. M. A., 116:301, 1941.

11. Macklin, C. C.: Transport of air along sheaths of pulmonic blood vessels from alveoli to mediastinum. Clinical implications, Arch. Int. Med., 64:913, 1939.

MANAGEMENT OF STRYCHNINE POISONING

CASE REPORT OF RECOVERY FOLLOWING INGESTION OF 0.325 GRAM

DONOVAN C. BROWNE, M. D.†
AND
GORDON McHARDY, M. D.†
NEW ORLEANS

Toxicity from therapeutic doses of strychnine is of minor importance for it is readily relieved by withdrawal of the drug. Frank overdosage, accidental or suicidal, results in tetanic convulsions, violent cardiovascular changes, spasmodic respirations and death from asphyxia, and from the paralysis which succeeds the stimulation. Although various factors affect absorption when taken orally, it is rapidly absorbed as illustrated in that convulsive effects are usually pronounced within fifteen to thirty minutes. Excretion is mainly urinary, with approximately 20 per cent appearing in the urine in an unchanged state, induced diuresis alters this percentage very slightly, if at all, so that therapeutic measures directed at increased excretion are relatively valueless.

We are prompted to report this instance of strychnine poisoning for five reasons; (1) The dose was proved to exceed greatly the minimal fatal dose; (2) it was taken accidentally which is unusual for strychnine, the dangers of the drug being so well known as to preclude carelessness; (3) relatively few persons have recovered after such dosage; (4) the relative infrequency of strychnine poisoning renders pertinent a review of the subject that one may have available the knowledge necessary for the immediate action required; (5) the success of an intravenous barbiturate in this case supports their relative specificity as antidotes to strychnine.

CASE REPORT

L. M., a 20 year old pharmacy student, was admitted to Touro Infirmary November 29, 1938. In error filling two 5 grain capsules with strychnine while intending the use of quinine, for self therapy of a mild respiratory infection, the patient swallowed one of these just prior to entering his nine o'clock class. (The second capsule was later found to contain 0.325 gm. of strychnine). Shortly thereafter there was tightening of his facial muscles followed by generalized muscular twitching. His error realized, at 9:20 a. m., he was forced to drink a weak solution of tannic acid. En route to the hospital he had two severe convulsions and was in opisthotonos when carried into the emergency room. At 9:35 a. m., after rapid intravenous administration of 0.5 gm. of sodium amytal, he relaxed and gastric lavage with potassium permanganate was performed. The lavage excited considerable muscular twitching and 0.016 gm. morphine sulphate was given intravenously. The twitching developed into the third convulsion with opisthotonos which lasted a full two minutes, subsiding while the second intravenous 0.5 gm. of sodium amytal was being given. For about twenty minutes the patient was completely relaxed, respiration exceeded 30 per minute, the systolic blood pressure was 165, the pupils were widely dilated. Then there was a recurrence of muscular twitching and at 10:10 a. m. the third intravenous 0.5 gm. of sodium amytal was given. A similar recurrence indicated the fourth repetition at 11:15 a. m., after which he remained quiet throughout the next nine hours and was not disturbed in any way. At 8:00 p. m. he began to move about and the fifth 0.5 gm. of sodium amytal was given. Shortly thereafter he was catheterized and 550 c.c. of urine removed and the bladder lavaged with 1:1000 potassium permanganate. (This urine yielded 27.5 milligrams of strychnine).

The patient was not permitted to waken, sodium amytal 0.25 gm. being given intramuscularly every four hours during the following 24 hours. On awakening, approximately 48 hours after the ingestion of the strychnine, he still appeared overstimulated despite the excessive sedation for a 122 pound male.

He was febrile the first 72 hours with a persistent tachycardia; there was a leukocytosis of 18,500. The urinalysis was negative other than for the presence of strychnine, traces of which persisted for four days. The blood chemistry showed no departure from normal.

The patient's convalescence was uneventful other than for diarrhea which persisted for six days. When last examined in May, 1940 he complained only of a persistent tachycardia. There were no cardiovascular findings and the electrocardiogram was normal. He is now a graduate pharmacist!

THERAPY

This case report illustrates several points of more than ordinary importance which will be discussed in the following therapeutic review.

---

†From the Department of Medicine, Tulane University of Louisiana School of Medicine, and the Gastroenterology Clinic, Touro Infirmary, New Orleans, La.

Older methods of therapy emphasized extreme quiet with avoidance of all stimulation. Immediate anesthesia with chloroform or ether was a necessity, that under such influence gastric lavage and rectally administered chloral hydrate could be achieved. Inhalation anesthesia is, of course, in itself a problem and besides the patient quickly wakens to suffer further convulsive seizures.

The choice of lavage material lies between potassium permanganate which will destroy the strychnine by oxidation and tannic acid which will precipitate the poison in a relatively insoluble form. Either of the two, if not removed, may cause a gastroenteritis, but no more effective material is available. Both were used in our patient without any untoward effect other than a mild enteritis.

Apomorphine has a limited group of advocates. It does not seem rational to use a drug that will precipitate a convulsion. Morphine, itself, theoretically is objectionable, since its action on the spinal cord is synergistic to strychnine. Our use of morphine intravenously certainly substantiates the contraindications to its use; immediately after it was given the patient had a severe convulsion.

In recent years realization of effective rapid anesthesia by intravenous barbiturates has led to their use as an anti-convulsant.

We are impressed by the effectiveness of sodium amytal in strychnine poisoning. Our patient was awake and in agony with extreme opisthotonos when first seen; relaxation and anesthesia were induced immediately by this rapidly acting intravenous preparation. The patient was not conscious of any further discomfort until permitted to waken. The quantity of barbiturate used is startling but since extreme stimulation was being combated, and further that strychnine and the barbiturates are antagonists, therein probably is the explanation for such tolerance. That the barbiturates neutralize considerable strychnine is substantiated by animal experimentation; its value as an antidote has been clinically supported by a sizeable group of case reports appearing in the literature since 1932.

We would like to suggest an additional measure, bladder irrigation, followed by instillation, using potassium permanganate to oxidize the excreted strychnine. Although it is generally accepted that few if any drugs are absorbed from the bladder, reabsorption may occur and for this reason we felt the elimination of such a possibility advisable.

CONCLUSION

It seems conclusive that an intravenous barbiturate is the best therapeutic agent in strychnine poisoning. By reducing excitability and keeping the patient asleep it achieves freedom from the agony of convulsive seizures and permits gastric lavage. In this effectiveness it can and does reduce the mortality from strychnine poisoning.

BIBLIOGRAPHY

Anderson, C. L.: Case of strychnine poisoning, Canad. M.A.J., 33:307, 1935.

Bancroft, A. G., and Boxhill, D. DeC.: Strychnine poisoning treated successfully, Brit. M.J., 1:363, 1936.

Dawton, W. T., and Porter, E. L.: Barbiturate-strychnine antagonism in spinal cat, Proc. Soc. Exper. Biol. & Med., 31:1048, 1934.

Gold, H., and Travell, J.: Ethyl alcohol and strychnine antagonism, J. Pharm. & Exper. Therap., 52:30, 1934.

Gold, H., and Travell, J.: Strychnine poisoning by alcohol, J. Pharm. & Exper. Therap., 52:345, 1934.

Priest, R. E.: Strychnine poisoning successfully treated with sodium amytal; report of two cases, J.A.M.A., 110: 1440, 1938.

Rose, T.: Strychnine poisoning with recovery, M.J. Australia, 1:213, 1935.

Swanson, E. E.: Detoxification of strychnine by pentobarbital sodium, J. Am. Pharm. A., 24:959, 1935.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

C. Grenes Cole, M. D., Ex officio
For one year: Lucien A. LeDoux, M. D., Vice-chairman.
H. W. Kostmayer, M. D.
Secretary
For three years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.

EDITORIAL STAFF
John H. Musser, M. D. .... *Editor-in-Chief*
Willard R. Wirth, M. D. .... *Editor*
Edwin L. Zander, M. D. .... *Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D. .... *General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the eighteenth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

THE ANNUAL CONVOCATION

The sixty-second annual meeting of the Louisiana State Medical Society will be held in Shreveport, April 21-23. The plans for this meeting are practically complete. From advance information this yearly gathering of the medical profession of the State of Louisiana promises to excel any meeting previously held in the state.

First, let it be pointed out that six distinguished and well-known physicians from out of the state will participate in the meeting. Dr. Holman Taylor, for many years secretary of the State Medical Society of Texas and one of the best informed men in the country on medical organization, medical economics and medical practice, will deliver the annual oration. Dr. Taylor stands high in the administration of the American Medical Association. His address will be a message that the practitioner cannot afford to miss. Dr. Harvey G. Beck, one of the best known of the older group in Baltimore and Professor of Clinical Medicine at the University of Maryland, will appear before the Section on Medicine and Therapeutics. Another Baltimore man, Dr. Ernest H. Gaither, will be on the program in the Section on Gastroenterology. Dr. Gaither has spoken several times in New Orleans and his lucid and enlightening and well delivered talks are familiar to many of the state members. Dr. J. D. Camp has been invited by the Section on Radiology to appear before their group. Dr. Camp is Associate Professor of Radiology in the Mayo Foundation. Dr. Brian Blades, on the program of the surgical section, is one of the younger group at the Barnes Hospital, associated with Dr. Evarts Graham, who helps to make Washington University one of the important surgical centers in the United States. Dr. Virgil S. Counseller is head of the Section of Gynecologic Surgery at the Mayo Clinic. His name is well known to gynecologists and obstetricians throughout the country. Surely a group of speakers such as the above will spread a literary and scientific feast to be partaken of by the auditors.

The program of the different sections shows that the doctors of Louisiana are observing and recording. The thirty-nine participants in the program will give a series of diverse and diversified papers on timely subjects which are presented to the medical men of Louisiana from the personal experiences of the observers. These papers will be discussed, it is hoped, freely and widely.

In addition to the scientific features which include a scientific exhibit and also a commercial exhibit which in a sense is scientific because it presents the latest developments in medicine and surgery, the social aspects of the meeting will be taken care of by as gracious and hospitable a group as exists in the state. Shreveport men will do everything to make the visit of the attendants enjoyable and memorable. They can always be counted upon to do this. The social features of the meeting, incidentally, are by no means a minor series of events. Here a man not only has the pleasure of meeting his colleagues and friends throughout the state but also has the opportunity of talking without restraint and man to man concerning the medical problems and the economic difficulties that he may have with some or many who are likewise interested in the same unsolved conundrums.

We urge all members of the Society to put at once the date of the annual meeting on their calendars, to inform their patients that they will be away on those days the last of April and to attend the annual get together of one of the best state societies in the United States.

———o———

STATE MEDICINE

The press announced last month that the Health Ministry of New Zealand had started, as of March first, with national free medical care. The doctors of New Zealand will receive $3.50 for each patient per year and mileage will be allowed for trips in the country of over twenty miles. The doctors must supply drugs, although they are allowed to charge the patient for these if they are able to collect the monies they must advance! The press accounts state that even unsuccessful doctors will be able to make about as much as $700 a year.

Just imagine the incentive a doctor will have for years of hard work, of study, of expenditure of a large amount of capital in order to obtain the princely sum of $700 a year. Think of the amount of work that would be necessary in order to obtain this munificent salary. At least, and probably a good many more than, two hundred patients must be taken care of during the year because this sum is not clear, but must be used in part for necessary expenses. In all likelihood 2000 forms must be filled out for these two hundred patients.

Just think of the type of service that will be rendered to a patient by a man who is expected to make his living from the returns from the care of the state-paid-for patients; even to make a living wage he will have to take care of an untold number of patients. He will not be able to give them the time for adequate study nor will he be able to devote any time to improving his knowledge of medicine. The physician's entire day will be spent in giving a service which necessarily will have to be inadequate and incompetent. The minimum wage distinctly has a tendency to promote incompetency.

Just think of how many bureaucratic officials will live on the doctor. A host of administrators, accountants, clerks and what not must be supported by the efforts of the physician.

Just think of the New Zealand medical care plan and then stop and think of the condition that the physician would be in in this country were he placed in the category of an employee of the state, the obeyer of the demands of some one or many who know nothing about the endless difficulties and the often insurmountable problems of the care of the sick man.

———o———

DISEASES TRANSMITTED FROM ANIMALS TO MAN

There are many diseases of domestic animals that are transmitted to the human animal. Many of these diseases are well known; tuberculosis, glanders, anthrax, smallpox or cowpox, psittacosis and brucellosis are excellent examples of diseases animals have and which in turn are given to man. There are some seventeen of these diseases but most of them, such as looping ill or Rift Valley fever, are extremely rare and uncommon. Another group of diseases which are public health problems because they are spread by rodents, include plague, which is practically never seen in this country, tularemia, typhus fever, Rocky Mountain spotted fever and rat-bite fever. Still another relationship of animal to man in the spread of disease has to do with those conditions in which the animal is not ill, in some way or another carries the organisms to transmit them to man. Diphtheria, scarlet fever and septic sore throat are examples of this particular method of spread. Lastly, animals may be passive carriers of germs which in turn may be carried to man. In this category may be placed tetanus, gas gangrene and botulism. Of course, besides these virus and bacterial diseases, fungus diseases may be transmitted by animals as well as various types of animal parasites.

Fortunately the dog, the one animal which prefers the company of man to his own species, rarely is known to transmit a disease. Even animal parasites are only occasionally passed from animal to master. On the other hand, cattle, the animal which more than any other one species supplies food to man, is very likely indeed to transmit disease either through the flesh or by the milk to the human being. Tuberculosis is a common example. It should be said to the credit of veterinarians that they are gradually stamping out tuberculosis amongst cattle in this country. The veterinarians in a twenty year period tuberculin tested more than 217,000,000 cattle. In the bodies of slightly under 4,000,000 reactors which were examined at postmortem almost without exception tuberculous lesions were present in these cattle. However, much more frequently is disease transmitted by milk. The number of diseases which may be transmitted by milk are not so numerous but often are devastating. Realizing and appreciating the difficulty in obtaining pure milk, enlightened sanitarians and health officers have become vigorous proponents of pasteurization of milk. Pasteurization of milk properly carried out will prevent the transmission of disease by milk. It should be a requisite for all milk distributed to the population as a whole. Even if there are comparatively few cases of brucellosis, the long course of the disease and the prolonged illness of the subject of this infection becomes a definite indication for pasteurization, and yet brucellosis is only one of the several diseases transmitted through milk.

The veterinarians and physicians must work hand in hand in attempting to eradicate some of the diseases of man and animal. Rabies is a splendid example of what may be accomplished by the conjoint efforts of these two professions. In many other types of disease mutual to man and animal the two professions should cooperate more than they are at the present time. Animal disease problems are, it is true, primarily public health problems but the doctor of veterinary medicine should play as important a part in helping to eradicate these diseases as does the doctor of medicine.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

MERCY HOSPITAL
New Orleans

The monthly meeting of the staff was held March 12, at 8:30 p. m. in the lecture room of the hospital, Dr. T. F. Kirn presiding.

Due to inclement weather and a small attendance the two speakers of the evening were asked to present their papers at our next regular meeting to be held Wednesday, April 2, 1941 at 8:00 p. m.

The deaths for the past month were reviewed by Dr. G. H. Hauser and discussion of most interesting cases was indulged in by the membership.

A very interesting case of staphylococcic septicemia following incision and drainage of an abscess of the arm (produced by intramuscular injections of digalen) was presented by Dr. P. A. Phillips and discussed by Dr. G. H. Hauser and other members of the staff.

The ladies auxiliary of the hospital is sponsoring a dinner dance at Club Athram on the night of April 26. The membership and friends are invited to participate: Tickets may be bought from any of the members of the auxiliary, or from the staff secretary for $1.50 per person.

N. J. Tessitore, M. D., Sec.

TOURO INFIRMARY
New Orleans

The regular monthly meeting of the Medical Staff was held on Wednesday, March 12 at 8 p. m. The program consisted of the following: Clinico-pathologic Conference by Dr. Harvey Colvin; "A Review of Hysterectomies in Touro Infirmary" by Dr. C. H. Tyrone; "Meckel's Diverticulum with Intestinal Obstruction" by Dr. L. H. Strug.

BAPTIST HOSPITAL
New Orleans

The regular monthly meeting of the Clinical Staff was held on Wednesday, February 26 in the Staff Room of the Hospital at 8 p. m. The program consisted of the following presentations: "Spastic Ureteritis in Women" by Dr. H. W. E. Walther; "Interesting Cases from the X-ray Standpoint" by Dr. L. W. Magruder and "Death Report" by Dr. Bert DeBord.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

April 1. Eye, Ear, Nose and Throat Staff, 8 p. m.

April 2. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.

April 3. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

April 7. Orleans Parish Medical Society Board of Directors, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

April 8. Eye, Ear, Nose and Throat Society, 8 p. m.

April 9. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Woman's Auxiliary, Orleans Club, 3 p. m.

April 10. New Orleans Hospital Council, Eye, Ear, Nose and Throat Hospital, 8. p. m.

April 14. Orleans Parish Medical Society, Scientific and First Quarterly Executive Meeting, 8 p. m.

April 15. Charity Hospital Medical Staff, 8 p. m.

April 16. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
The Orleans Tuberculosis Hospital Staff, 8 p. m.

April 17. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

April 18. I. C. R. R. Hospital Staff, 12 noon.

April 21. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.

April 22. Baptist Hospital Staff, 8 p. m.

April 23. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Catholic Physicians' Guild, 8 p. m.
French Hospital Staff, 8 p. m.

April 24. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

April 25. L. S. U. Faculty Club, 8 p. m.
New Orleans Dispensary for Women and Children Staff, 8 p. m.

April 30. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

During the month of March the Society held one regular scientific meeting, and one joint scientific meeting with the New Orleans Graduate Medical Assembly. The programs were as follows:

Regular Scientific Meeting

1. Etiology of Influenza—A Review
By Dr. George W. McCoy
2. Otorhinolaryngologic Aspects of Influenza
By Dr. H. L. Kearney
3. Treatment of Influenza
By Drs. Oscar W. Bethea and Ralph G. Greenlee
4. Case Report: An Unusual Case of Sciatica
By Drs. Irving Redler and Gilbert C. Anderson

Joint Scientific Meeting

1. The Management of Acute Intestinal Obstruction..................By Dr. Owen H. Wangensteen, Professor of Surgery, University of Minnesota Medical School
2. Complete Tears of the Perineum
By Dr. Louis E. Phaneuf, Professor of Gynecology, Tufts College Medical School

TREASURER'S REPORT

Bank Balance, January 31, 1941	$5,510.66
February Credits	1,160.47
Total Credits	$6,671.13
February Expenditures	1,166.22
Actual Book Balance, February 28, 1941	$5.504.91

NEWS ITEMS

Dr. Merrill C. Beck was recently elected to membership on the board of the Child Conservation League of Louisiana.

Dr. James K. Howles was recently elected to fellowship in the American College of Physicians.

Dr. E. L. Leckert was elected president of the Catholic Physicians' Guild of New Orleans at its recent meeting. Other officers elected were: Dr. Joseph Danna, first vice-president; Dr. E. L. Zander, secretary; Dr. N. F. Thiberge, treasurer; Dr. T. F. Kirn, chairman of activities; Dr. F. J. Chetta, chairman of membership committee; Drs. Dan Murphy, W. G. Troescher and Joseph Palermo, members of the board of directors.

Dr. Alton Ochsner presented a paper on the rôle of vasospasm in thrombophlebitis at Emory University, January 30.

Dr. Thomas B. Sellers was a guest speaker at the International Post-Graduate Medical Assembly in San Antonio, January 28-30. The papers which he presented were "Dysmenorrhea," "Breech Presentation," and "Present Status of Pessaries in the Armamentarium of the Obstetrician and Gynecologist."

The monograph entitled "The Rôle of the Liver in Surgery," for which Dr. Frederick F. Boyce was awarded the 1940 Gross Prize for original research in surgery by the Philadelphia Academy of Surgery, has just been published by Charles C. Thomas.

Dr. Rufus H. Alldredge was recently certified by the American Board of Orthopedic Surgery.

Dr. Rufus H. Alldredge gave a paper on "Fibrocystic Diseases of the Bones" at the ninth annual meeting of the American Academy of Orthopedic Surgeons, held January 13-16.

Dr. Frederick F. Boyce conducted a diagnostic clinic on the management of difficult biliary tract surgery for the staff of the department of surgery and the third and fourth year students of the Yale University Medical School.

Dr. W. H. Perkins was recently re-elected president of the New Orleans Tuberculosis and Public Health Association of Louisiana. Other officers are: Dr. A. J. Hockett, second vice-president; Dr. B. I. Burns, director; members of the executive committee, Drs. R. Alec Brown, Joseph A. Danna, Sydney Jacobs, M. E. Lapham, John H. Musser, I. L. Robbins, Robert A. Strong, Julius L. Wilson, and J. O. Weilbaecher, Jr.

Dr. Marion Souchon won the annual award for the most distinctive painting at the recent Mississippi Art Association exhibition in Jackson.

At a recent staff meeting of the Mercy Hospital, Dr. Rupert Arnell presented a paper "Hemorrhage in Late Pregnancy"; Dr. M. L. Stadiem presented a paper on the "Present Status of Endocrine Therapy in Gynecology"; and a motion picture on "Acute Cholecystitis" was shown by Dr. Frank Loria.

Edwin L. Zander, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

THE PRESIDENT OF THE STATE MEDICAL SOCIETY

Dr. C. Grenes Cole was born in Greensburg, St. Helena Parish, Louisiana on July 31, 1880. After attending grade school in Greensburg, he further pursued his studies at Louisiana State University, following which he entered the Medical Department of Tulane University, graduating in 1908. Dr. Cole then served a year's internship at Shreveport Charity Hospital and two years' internship at Charity Hospital in New Orleans.

Following his graduation from Tulane University he served as House Surgeon at Hotel Dieu from July, 1908 until January, 1909 from which position he resigned to accept the Assistant House Surgeonship of the New Orleans Charity Hospital, serving there until 1914.

Dr. Cole has been connected with the teaching staff of both Tulane and Louisiana State University Medical Schools having served as Assistant Professor of Gynecology, Undergraduate Department, and later as Assistant Professor of Clinical

Surgery, Postgraduate Department, Tulane University. At the organization of the Louisiana State University Medical Center he was made Professor of Clinical and Industrial Surgery.

He was a member of the Board of Administrators of Charity Hospital from August, 1930 until August, 1934. In 1930 he was elected President of the Orleans Parish Medical Society and has been Chairman of the Committee on Public Policy and Legislation of the Orleans Parish or Louisiana State Medical Society for many years. In addition to his present duties as President of the Louisiana State Medical Society, he is also serving as State Chairman of the Medical Preparedness Committee of the American Medical Association and President of the Louisiana State Coroners' Association.

Dr. Cole was elected Coroner of Orleans Parish in 1934 which office he has held continuously since this date. He is a member of the Orleans Parish Medical Society, Louisiana State Medical Society, Southern Medical Association, American Medical Association, The Southeastern Surgical Congress and has been a Fellow of the American College of Surgeons since its foundation. He is Senior Surgeon on the Visiting Staff of Hotel Dieu, Southern Baptist, Mercy and Charity Hospitals.

In 1914 he married Miss Hallette Barrow of New Orleans. Dr. and Mrs. Cole live in New Orleans where Dr. Cole has been practicing medicine since his graduation, and have a country home in Houma, Terrebonne Parish, where Dr. Cole raises camellias and poultry and supervises the management of his sugar plantation and other interests.

DR. FRED J. MAYER

TO WHOM THIS ANNUAL MEETING IS DEDICATED

Dr. Mayer was born in St. Mary's Parish April 14, 1859. His schooling was had in the public schools of Opelousas but as much of his boyhood was spent in Bavaria, London and Belfast, much of his education was obtained from tutors. He taught public school from 1876-1882, starting this activity when he was only 18 years old. He then studied medicine at the University of Louisiana (Tulane), graduating in 1883. In 1885 he was chosen president of the Attakapas Medical Society, the oldest medical society in the state. At this time Dr. Mayer warned the profession in the state that the propaganda of hygiene should be done only under the auspices of the medical organization. He himself gave the first popular hygiene lecture in the South, in Lafayette, on infections and contagions. He discussed tuberculosis and explained the non-contagiousness of yellow fever. He fathered a resolution before this medical society and the State Medical Society to issue for free distribution to the public a pamphlet on the nature of tuberculosis published in English, French and Italian.

In 1887 he organized and obtained a charter for the first popular institute for hygiene, aided by leading sanitarians in the state.

In 1890 Dr. Mayer became assistant quarantine physician, Quarantine Station, Port Eads, a position which he held for three years. At this time he urged the use of formaldehyde in flat disinfection, where sulphur dioxide could not be used and advocated the use of oil instead of coal for the United States Navy.

Following these activities Dr. Mayer, in 1900, resumed practice. He drafted a hygiene bill which, largely through his efforts and despite bitter opposition of the then governor, obtained passage of this bill through two legislatures, but it was vetoed twice. Enactment of this law would have saved the state many dollars and many human lives. About this time he drew up the plan that made possible the Southwestern Louisiana Institute at Lafayette. As Chairman of the Section of Medical Jurisprudence of the Louisiana State Medical Society, he presented a paper on medical expert testimony, ridiculing existing practice of calling for reform based on common sense and scientific knowledge of psychiatry. Dr. Mayer at this time was actively interested in health problems. He toured the state, lecturing on the subject of health in the human and animal, pointing out that the worst economic leak on the farm was disease in man and animal. He urged better roads and more thorough drainage as a health measure. He urged closer cooperation between medical and veterinary societies pointing out the intercommunicability of human and bovine tuberculosis and even went to Washington in an attempt to secure action by Congress. In 1906 he was appointed special medical inspector of Louisiana and was instrumental in revising the sanitary code of the State. He aided in securing passage of the pure food and drug law of the state before similar Federal action had ever been taken. He was active in an epidemic of yellow fever in 1906 and conducted in 1905 a series of over 100 mosquito institutes in the yellow fever area.

Public health measures were always of interest to this distinguished member of the profession. He studied and investigated an outbreak of dengue in Brownsville, Texas. He investigated and traced the fly infection to typhoid fever in Sabine and Point Coupee Parishes. He was delegate to the American Public Health Association which met in Mexico City in December 1906.

His activity in public health measures continued through his active life. He presented papers before the American Public Health Association meeting in Washington in 1908. He held institutes throughout the state on yellow fever, tuberculosis, typhoid and hookworm and he was active in giving "sanitary Sunday sermons" in churches. Two years later he was made special inspector by the state health officer of Texas to investigate yellow fever, cholera and bubonic plague in Europe, South and Central America. He, at that time on his return from this trip, addressed the Texas Legislature, crusading against the slaughter house evils and promoting the inspection for tuberculosis in infected cattle.

Realizing the worth of this outstanding physician, in 1912 he was elected president of the Louisiana State Medical Society. Under his regimen the debt of the State Society was lifted and the organization was placed on a cash basis. As president of the State Medical Society he conducted two rat institutes at New Orleans and at the time predicted an epidemic of plague unless rat proofing was carried out. He delivered his sanitary sermons not only in Louisiana but also in Texas, Kentucky and Virginia.

In 1918 Dr. Mayer was appointed field agent and organizer of the field units of the tuberculosis league and prepared a comprehensive plan for state organization. Since that time Dr. Mayer has urgently preached public health measures. He says "the stone of preventive medicine that the builders once rejected has now become the cornerstone of the modern medical edifice." He says also that from the experience to be gained in his years of attempting to educate the public and surmounting the difficulties of altering previous opinions that he has learned the best way to educate adults was through the children in schools.

The State Society does well to honor this distinguished medical educator, an educator who has taught and preached health measures far and wide. It is through the stimulation of men such as Dr. Mayer that as much has been accomplished as it has in preventive medicine. All honor to him.

THE ANNUAL ORATOR

Dr. Holman Taylor, the son of Dr. and Mrs. J. H. Taylor, was born in Hallsville, Texas, April 8, 1874. His grandparents on both sides of the family were Texas pioneers, and descendants of early settlers of the United States, as witness his membership in the Sons of the American Revolution. He received his education in the public schools of Marshall, to which city he moved when he was eight years of age. He attended Bethel College, at Russellville, Kentucky, graduating with the degree of Bachelor of Science, in 1896. He graduated in Medicine from the Medical Branch of the University of Texas, Galveston, in 1899. He entered the general practice of medicine at Marshall, in partnership with his father, the year of his graduation at Galveston. He practiced at Marshall until 1910, at which time he removed to Fort Worth, where he entered general practice and took over the duties and responsibilities of Secretary-Editor for the State Medical Association of Texas, which position he has held continuously since that time, except for the time he spent in the Army during the first World War.

Dr. Taylor became a member of the State Medical Association in 1901, and was made a councilor of the State Medical Association in 1903. He served in that capacity, and as secretary of the Board of Councilors, until 1910, at which time he was elected Secretary and appointed Editor. He has been a member of the House of Delegates of the American Medical Association since 1911. He is at the present time a member of the Judicial Council of the American Medical Association. He was chairman of the Military Affairs Committee of the American Medical Association during the life of that committee, over a period of several years following the World War. He is now chairman for the State of Texas, of the Committee on Medical Preparedness of the American Medical Association.

The military career of Dr. Taylor has been mainly in the line. His only service in the Medical Department was during the Spanish-American War, at which time he was a hospital steward in the Third Texas United States Volunteer Infantry. His military career began September 4, 1891, at which time he enlisted as a private. He was made

Second Lieutenant within two years, and served in every capacity in the line up to and including Brigadier General, which rank he held at the time of his retirement, April 8, 1938. He was retired with the rank of Brevet Major General.

Dr. Taylor was married October 5, 1910, to Miss Fannie Eleanor Lake, of Marshall. There is one son, Holman Taylor, Jr., at the present time a Sophomore in the Medical Branch of the University of Texas.

SHREVEPORT
THE CITY FOR THE ANNUAL MEETING

Shreveport, with a population of well over 100,000, was founded in 1836 by Captain Henry Miller Shreve, steamboat captain, who purchased the site from Larkin Edwards, a pioneer who had acquired it by a treaty from the Caddo Indians. Shreveport's first name was Shreve's Landing. This was later changed to Shreveport. Shreveport's growth from this humble beginning to its present day size has been phenomenal.

Shreveport was developed as a distributing center for merchandise and supplies going into Mexico, the Republic of Texas, and the Indian Territory, now Oklahoma. The river boats navigated up the Red River and supplies were carried on by wagon trains.

Struggling as a small frontier port for the vast territory of the Southwest for many years, Shreveport was to play an important part in the development of this great section. Steamboats carried most of the freight from the Mississippi ports up the Red River to Shreveport, whence it was loaded on wagon trains and moved into the territory to the west.

Along with this development, Shreveport was also growing in a medical way. Regardless of the fact that Shreveport has no Medical College in her midst, she has long been considered an important medical and surgical center.

Some who are not familiar with the circumstances are amazed to learn that Shreveport has eight hospitals with a combined capacity of 1498 beds. This appears out of proportion when compared with hospital facilities of other cities of equal population. The explanation is found in the fact that Shreveport is surrounded by a populous area known as the land of Ark-La-Tex, which includes South Arkansas, North Louisiana, and East Texas. Within a radius of 50 miles surrounding Shreveport, there is a population of 370,000 and within a radius of 150 miles there is a population of 2,500,000. This is the territory from which Shreveport attracts her trade in all lines of commerce, and it is this same territory from which the Shreveport hospitals draw their patronage. This, of course, does not apply to the State Charity Hospital, which is located in Shreveport, as this institution is supposed to serve only patients who reside in the State of Louisiana.

The Shreveport Charity Hospital had its origin through efforts of city officials and public spirited citizens of Shreveport as far back as 1866. In 1876 the State Legislature passed an act establishing the Shreveport Charity Hospital. The location at that time was at the end of Western Avenue. In 1882, the present site was secured through legislative act providing funds for site and buildings, but the completion of this building program was delayed until 1889. The hospital which was built at that time was a frame building with a capacity only of 40 beds. In 1903 the present building was erected, which would accommodate approximately 200 patients. Since that time, there have been many additions and improvements which bring the present capacity up to 800 beds.

The T. E. Schumpert Memorial Sanitarium was founded as a private institution in the year 1894 (about) by Dr. T. E. Schumpert. This was begun in a two story frame building on Texas Avenue. He later purchased the old Y. M. C. A. building at the corner of Milam and Edwards Streets and continued the sanitarium at that location until a later date when he purchased the old Kate P. Nelson Seminary building. The hospital was operated in this building under the name of The Shreveport Sanitarium with Dr. Schumpert in charge as proprietor.

On June 1, 1907, the Sisters of the Incarnate Word of Galveston, Texas, took charge of the institution through an arrangement between them and Dr. Schumpert, which was consummated prior to his death which occurred May 15, 1908. On May 16, 1911, the Sisters had the formal opening of the present institution on Margaret Place. The present capacity is 142 beds.

The North Louisiana Sanitarium was founded by the late Dr. Louis Abramson and associates in 1907. The location was on Crockett Street, and the capacity was around 60 beds. The sanitarium continued its activities at the above named location until July, 1924, when the new building on Louisiana Avenue was opened with facilities for taking care of 110 patients.

The Highland Sanitarium was founded in 1917 by the late Dr. John A. Hendrick and Dr. Thomas P. Lloyd. The original facilities would care for approximately 75 patients. A few years later additions were made so as to increase the capacity to 110 beds.

The Tri-state Hospital was established in 1924, on the present site, by Drs. L. H. Pirkle and T. E. Williams. The capacity of the hospital at that time was around 65 beds. In 1929 this hospital was enlarged to a capacity of 110 beds and sold by Drs. Pirkle and Williams to the Tri-State Hospital, Incorporated. This corporation is headed by the Willis-Knighton Clinic under whose management the institution has been operated since 1929.

All the above named private hospitals and the Charity Hospital have all the equipment and facilities required for Class A rating and each one of these hospitals has been granted Class A rating by the American College of Surgeons, and also by the Council on Medical Education and Hospitals of the American Medical Association.

In addition to the above named general hospitals, Shreveport has the following special hospitals and sanatoria: The Pines Sanatorium for the treatment of tuberculosis, with a capacity of 104 beds. There are two well equipped buildings, one for white patients and the other for colored patients. This is a semi-charity institution and is partly maintained by the Community Chest and by private gifts. The Pines owes its existence to Mrs. Mayer Benson, of Shreveport, who was its founder and who has been its guardian angel during the 26 years of the existence of this worthy enterprise.

The Shriners Hospital for Crippled Children began its service in Shreveport in September, 1922. This hospital was the first of a chain of similar institutions over the United States which were founded and are being maintained by the Shriners organization. The Shreveport hospital has 60 beds and is doing a wonderful service for indigent crippled children. Dr. H. A. Durham is the chief surgeon and it is through his efforts that the hospital is rated by the American Medical Association Council as being suitable for postgraduate teaching of orthopedic surgery.

The Gowen Sanatorium for the treatment of tuberculosis has a capacity of 22 patients. This institution together with others of similar character has done a great deal to teach the people that tuberculous patients may be treated successfully in any climate regardless of altitude. Dr. Charles R. Gowen is the founder and Chief of Staff since opening the doors of this handsomely equipped hospital in 1932.

The Gilmore Chest Hospital for the treatment of tuberculosis, founded only recently by Dr. Peachy Gilmer, is located on Louisiana Avenue and has a capacity of eighteen beds.

Shreveport has ample hotel facilities; the largest, the Washington-Youree, has recently been reconditioned and will be the headquarters for the meeting of the State Society. While accommodations may usually be obtained, it is suggested that arrangements be made in advance by writing to the hotels or addressing a communication to Dr. Charles R. Gowen, Chairman of Hotel Committee, who will be happy to make the arrangements.

The committees under the general chairmanship of Dr. R. T. Lucas have been hard at work and everything is being prepared to make the meeting worth while as well as pleasant for all visitors.

The Auxiliary has planned a schedule that will keep the ladies entertained throughout the meeting.

The usual luncheons and the annual banquet will be held at the times and places to be announced during the meeting.

Ward rounds have been arranged at the Charity Hospital for Tuesday and Wednesday between the hours of 8 and 9 a. m. under the direction of Dr. Joe Heard, Chief of Surgery.

Shreveport has long had a reputation for hospitality and the many who have come to previous meetings at Shreveport will attest to the comfortable arrangements, the cordiality, and spirit of good fellowship offered by the Shreveport medical profession. An unusually large attendance is anticipated.

TANGIPAHOA PARISH MEDICAL SOCIETY

The regular monthly meeting of the society was called to order at Hammond, 7:30 p. m., March 13, by the president, Dr. DeLoach Thames.

During the first session representatives of civic organizations of the parish attended to hear Dr. J. H. Musser and Dr. F. S. Williams speak on plans for establishing a health unit in Tangipahoa Parish. A committee was appointed by the president to meet with the Survey Committee from the Health Department to determine the exact budget and size of unit needed for this parish.

Dr. Richard Gates gave an interesting talk on the work being done by the Florida Parishes Hospital.

Rules and regulations of the Farm Settlement Program were read by Mr. Stewart at the close of the meeting.

S. J. Cali, M. D., Sec.

BI-PARISH MEDICAL SOCIETY

The Bi-parish Medical Society met March 5 in the East Louisiana State Hospital after a dinner thoroughly enjoyed by all present. The society was called to order in the Staff Room of the Hospital.

After reading the minutes and routine business, Dr. C. W. Mattingly, of New Orleans, read an excellent paper on "Congenital Pyloric Stenosis with Its Modified Surgical Therapy." The paper was discussed favorably by all physicians present. The society extended thanks to Dr. Mattingly for the presentation of his paper.

E. M. Toler, M. D., Sec.

LAFOURCHE VALLEY MEDICAL SOCIETY

The Lafourche Valley Medical Society met in Thibodaux on March 26. The following subjects were presented: "Differential Diagnosis of Blood Dyscrasias" by Dr. Carlo Tripoli of New Orleans; "Diagnosis and Management of Biliary Tract Disease" by Dr. Leo Kerne of Thibodaux.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The fifth annual meeting of the New Orleans Graduate Medical Assembly came to a successful conclusion Friday, March 7, when clinics were held by various members of the Assembly in the hospitals of New Orleans.

The meeting this year was the largest in attendance, largest in the size and number of scientific exhibits and the largest in the number of commercial exhibits that has yet been held. There were slightly under 1,000 people registered, who attended the meetings in large numbers. The daily roundtable luncheons were always the most popular feature, at which one or another or several of the well-known guest speakers spoke extemporaneously on some lively current problem.

It might be said that to the average medical man these meetings are outstanding. They have the opportunity of seeing in person and hearing some of the best known specialists in the country. It is to be hoped that the meetings will continue to grow and each year the convocation will be even better than the previous one.

NEWS ITEMS

Dr. Hilliard E. Miller has been honored by election to the presidency of the American Gynecological Club.

An intensive postgraduate course in ophthalmology will be given at the George Washington University School of Medicine, April 7-12, 1941 inclusive. Details may be obtained in the editorial offices of the Journal.

Attention is called to the announcement that the American Public Health Association will hold its annual meeting this year in Atlantic City, October 14-17. There will also be special programs for the eleven organizations meeting with the American Public Health Association.

The National Gastroenterological Association will meet in New York at the Hotel Commodore, May 13-16. Further information may be obtained from Dr. Henry Kendall, 16 East 96th St., New York City.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons offers a prize of $150.00 for the successful thesis on a subject related to this particular specialty. Details concerning the prize and rules governing the award may be obtained from Dr. J. R. Bloss, Secretary, 418 Eleventh Street, Huntington, W. Va.

The first Latin American Congress for Plastic Surgery will be held in Rio de Janeiro and Sao Paulo, July 6-12, 1941. Information concerning this meeting may be obtained in the office of the Journal.

Dr. Oliver P. Daly, former superintendent of the Charity Hospital at Lafayette, has been appointed superintendent of the Charity Hospital at New Orleans. Drs. C. B. Odom and J. O. Weilbaecher, Jr., will continue as associate superintendents.

Dr. Alton Ochsner was honored by election to the office of president-elect of the Southeastern Surgical Congress at the recent meeting in Richmond, Virginia, March 10-12.

Dr. John T. Crebbin, formerly of Shreveport, has been appointed superintendent of the Eye, Ear, Nose and Throat Hospital to succeed the late Mr. George L. Ferry.

Beginning with its January-February issue, The Journal of Infectious Diseases will be published by the University of Chicago Press under the editorship of a newly appointed Board of Editors, with William H. Taliaferro, Chairman of the Department of Bacteriology and Parasitology, the University of Chicago, Editor-in-Chief. The Journal is published bi-monthly. It was established in 1904 by the John Rockefeller McCormick Memorial Institute for Infectious Diseases. The publication of this Journal adds another strong link to the chain of scholarly journals published by the University of Chicago Press,—now 18 in all.

COURSE IN TROPICAL MEDICINE

A course in tropical medicine of five days' duration will be given in New York city under the auspices of the New York Post-graduate Medical School of Columbia University. Details of this course, for which the fee is fifty dollars, may be had from the Director, 309 East 20th Street.

MEDICAL OPENING

There is an opening for a young doctor interested in locating in Hazelhurst, Mississippi. Anyone interested should address Mr. J. E. Brent at Hazelhurst.

A. A. I. P. S. AND A. I. H. A.

The annual meeting of the American Association of Industrial Physicians and Surgeons and the American Industrial Hygiene Association will be held May 5-9 in Pittsburgh, with headquarters at the Hotel William Penn. A splendid program has been prepared by the program committee; there will also be scientific exhibits and hospital clinics. At the annual banquet Dr. Irvin Abell, Chairman of Health and Medicine Committee, F. S. A., and Dr. V. O. Knudsen, Dean of the Graduate School, University of California, will be the speakers.

LECTURES ON POLIOMYELITIS

A series of six lectures on poliomyelitis will be delivered under the auspices of the National Foundation for Infantile Paralysis at Vanderbilt University Hospital Amphitheater, Nashville, Tennessee, on April 7, 8, 9, 14, 15 and 16 at 8:00 p. m.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathologic examinations (Part II) for all candidates (Groups A and B) will be conducted at Cleveland, Ohio, by the entire Board from Wednesday, May 28, to Monday, June 2, 1941, inclusive, prior to the opening of the annual meeting of the American Medical Association in Cleveland, Ohio.

AMERICAN COLLEGE OF PHYSICIANS

The annual meeting of the American College of Physicians will be held in Boston, April 21-25. The usual excellent program has been provided for the listeners. The papers and clinics will fill five days, from dawn to dusk. Some of the outstanding features of the program include a symposium on diseases of circulation to be participated in by Meakins of Montreal, King of Hopkins and Stroud of Pennsylvania; a symposium on nutritional and metabolic diseases, in which symposium will be Wilder from The Mayo Clinic, Col. Logan of the U. S. Army, and Mason of the faculty of McGill University; a symposium on military medicine in which the Surgeon General of the army, the Surgeon General of the navy and Surgeon General of the U. S. Public Health Service will speak; a symposium on infectious diseases in which Reimann of Jefferson, Dyer of the U. S. Public Health Service, Horsfall of the International Health Division of the Rockefeller Institute and Herrmann of Galveston, will take part. At noon there will be a series of symposia; one on disorders of the blood and one on Bright's disease, lead respectively by Minot and Doan in the first instance, by Longcope, Fishberg and O'Hare in the second, seem to be particularly interesting. Long, Marshall and Janeway will conduct a discussion on the sulfonamide drugs. There are so many excellent features of the program it hardly seems fair to point out any as being outstanding. The excellency of the program undoubtedly makes this meeting the outstanding meeting in internal medicine in the country.

A. M. G. A. GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-seventh annual tournament at Cleveland Country Club and Pepper Pike Club in Cleveland, Ohio, on Monday, June 2, 1941. Members may tee off from 7:30 a. m. to 2 p. m.

Fifty Trophies and Prizes: Thirty-six holes of golf will be played in competition for the fifty trophies and prizes in the eight events. Trophies will be awarded for the Association Championship, thirty-six holes gross, the Will Walter Trophy; the Association Handicap Championship, thirty-six holes net, the Detroit Trophy; Championship Flight, First Gross, thirty-six holes, the St. Louis Trophy; Championship Flight, First Net, thirty-six holes, the President's Trophy; Eighteen Hole Championship, the Golden State Trophy; Eighteen Hole Handicap Championship, the Ben Thomas Trophy and the Atlantic City Trophy; Maturity Event, limited to Fellows over 60 years of age, the Minneapolis Trophy; and the Oldguard Championship, limited to competition of past presidents, the Wendell Phillips Trophy. Forty other prizes will be awarded for the various flights.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Bureau of Epidemiology of the Louisiana State Department of Health for the week ending February 15, showed that syphilis, according to habit and tradition, led all reported diseases with an incidence of 324 cases, followed by 168 of influenza, 76 of pneumonia, 30 of pulmonary tuberculosis, 29 of uncinariasis, 19 of gonorrhea, 18 of chickenpox, and 13 of cancer. There were three cases of typhus fever, two of tularemia and one of undulant fever listed. For the succeeding week, which closed on Washington's birthday, the following diseases were reported in numbers greater than ten: 194 cases of syphilis, 96 of influenza, 95 of pneumonia, 28 of pulmonary, 23 of gonorrhea. A case of poliomyelitis appeared for the first time in many weeks; it was discovered in East Baton Rouge Parish. One case of typhus fever, one of undulant fever and one of tularemia were also reported this week. For the ninth week of the year, concluded March 1, there were recorded 138 cases of syphilis, 133 of influenza, 59 of measles and of gonorrhea, 40 of chickenpox, 38 of pulmonary tuberculosis, 36 of pneumonia, 18 of whooping cough, and 16 of cancer. Another case of poliomyelitis was listed this week, this time from Calcasieu Parish; three cases of typhus fever were also listed in this period. Three hundred and thirty cases of syphilis were listed for the week ending March 8, followed by 42 each of pneumonia and influenza, 38 of gonorrhea, 33 of chickenpox, 28 of septic sore throat, 21 of measles, and 16 of pulmonary tuberculosis.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, reports that for the week ending February 8, there were 173 deaths in the City of New Orleans divided 114 white and 59 negro. Fourteen of these deaths were in children under one year of age. For the following week there was a slight drop in the total number of deaths, there being listed only 167, of which 108 were in the white and 59 in the negro. The 14 infant deaths were divided equally between the two races. There was a fairly sharp drop in the death rate in New Orleans for the week which closed February 22. The 141 deaths in this week were divided 85 white and 56 negro; 15 children under one year of age expired, divided practically equally between the two races. For the week which came to a close March 1, 156 of the citizenry of New Orleans succumbed; 98 of these were white people and 58 were colored. The 13 infant deaths were divided seven white and six negro. The death rate in the City of New Orleans has been running considerably lower than the three year average; for example, the average for this particular week of the year is 166, whereas there were 147 dying in the city, 95 white and 52 negro, for the week which concluded March 8, 1941. The infant mortality was nine, four white and five negro children.

CORRESPONDENCE

March 17, 1941.

Editor-in-chief,
New Orleans Medical and Surgical Journal,
New Orleans, La.

Dear Sir:

Recently there has been established in this Library with the approval of The Surgeon General of the Army a microfilm copying service and a weekly Current List of Medical Literature prepared from the cards made for future issues of the Index Catalog. These two projects are conducted under the auspices of a recently organized group of Friends of the Army Medical Library. Sample copies of the Current List and a pamphlet describing Medicofilm Service are sent herewith.

The object of this undertaking is to place the resources of this Library at the disposal of those who are engaged in the advancement of medical research irrespective of where they live or work.

Undoubtedly there are many readers of your journal who would be interested in learning of this service and it would be highly appreciated if you could assist us in making facts more widely known, through the columns of your journal. As Librarian of the Army Medical Library, I have a great interest in the work the Friends of the Library are doing, and although I take no part in this officially, I have left no stone unturned to aid them in their work.

Sincerely yours,
Harold W. Jones,
Colonel, M. C., U. S. Army, The Librarian, Army Medical Library.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Roy Carl Young, Covington.

President-elect—Mrs. Aynaud Hébert, New Orleans.

First Vice-president—Mrs. Joseph E. Heard, Shreveport.

Second Vice-president—Mrs. W. A. Ellender, Houma.

Third Vice-president—Mrs. M. H. Foster, Alexandria.

Fourth Vice-president—Mrs. C. P. Gray, Monroe.

Treasurer—Mrs. M. C. Wiginton, Hammond.

Recording Secretary—Mrs. P. A. Donaldson, Reserve.

Corresponding Secretary—Mrs. Herbert Cannon, Covington.

ANNUAL MEETING
1941 HEADQUARTERS
WASHINGTON-YOUREE HOTEL

Registration Desk	Mezzanine Floor
Mrs. Joseph E. Heard	General Chairman
Mrs. S. George Wolfe	Vice-Chairman

CHAIRMEN OF COMMITTEES

Mrs. W. J. Sandidge	Registration
Mrs. John L. Scales	Information
Mrs. B. C. Garrett	Program and Tickets
Mrs. D. R. McIntyre	Publicity
Mrs. Harold Quinn	Exhibits
Mrs. L. W. Gorton	Transportation
Mrs. E. Clay Edwards	Telephone
Mrs. O. O. Jones	Flowers
Mrs. P. C. Worley	Pages
Mrs. W. B. Heidorn	Luncheon
Mrs. T. E. Strain	Luncheon
Mrs. C. P. Rutledge	Tea
Mrs. W. R. Harwell	Printing

OFFICERS OF HOSTESS AUXILIARY

Mrs. C. B. Erickson	President
Mrs. W. R. Harwell	President-elect
Mrs. E. Clay Edwards	First Vice-President
Mrs. Erwin L. Gill	Second Vice-President
Mrs. M. D. Hargrove	Recording Secretary
Mrs. J. M. Bodenheimer	Treasurer
Mrs. J. D. Youman	Corresponding Secretary
Mrs. W. M. Hall	Publicity
Mrs. R. T. Lucas	Parliamentarian

PROGRAM

Monday, April 21

12:30 p. m. Registration—Mezzanine, Washington-Youree Hotel.

1:00 p.m. Luncheon for Executive Board Members, Washington-Youree Hotel.

Pre-convention Executive Board Meeting immediately following luncheon, Mrs. Roy Carl Young, presiding.

8:00 p. m. Opening Meeting.

Tuesday, April 22

10:00 a. m. General Session, Washington-Youree Hotel.

Mrs. Roy Carl Young, presiding.

Invocation—Rev. L. B. Cobb.

Address of Welcome—Mrs. C. B. Erickson.

Response—Mrs. Roy B. Harrison.
In Memoriam—Mrs. H. O. Barker.
Reading of Minutes.
Reports of:
  State Officers.
  State Committees.
  Parish Auxiliaries.
  Special Committees.
Report of W. A. to A. M. A., Mrs. A. D. Tisdale, Monroe.
Report of W. A. to S. M. A., Mrs. W. R. Buffington, New Orleans.
Unfinished Business.
Recommendations by Executive Board.
New Business.
Report of Nominating Committee.
Election of Officers.
Introduction of New Officers.
Announcements by New President.
1:00 p. m. Luncheon — Woman's Department Club.
  Mrs. R. T. Lucas, Toastmistress.
Adjournment, immediately followed by Post-convention Executive Board Meeting, Mrs. Aynaud Hébert, presiding.
3:30 p. m. Tea, in honor of Mrs. Aynaud Hébert.
9:00 p. m. Dinner Dance.

Wednesday, April 23

11:30 a. m. Book Review by Mrs. Peachy Gilmer, Shreveport Country Club.
1:00 p. m. Luncheon in honor of Mrs. V. E. Holcombe, President Woman's Auxiliary to the American Medical Association.
3:00 p. m. Drive to Iris Gardens.

I am very happy to announce that our National President, Mrs. V. E. Holcombe, of Charleston, West Virginia, will attend our State Convention in Shreveport.

ORLEANS PARISH MEETING

At the regular meeting of the Woman's Auxiliary to the Orleans Parish Medical Society held February 12 at the Orleans Club, Mrs. Roy Carl Young, of Covington, State President of the Auxiliary, gave the following message:

As your president, I have had a year of constructive work and pleasant and helpful associations. Our most vital problem is preserving the fundamental principles of the medical profession; we must not only be thoroughly organized, but we must be educated and we must help educate the public. This can be done by educative programs, public relations, *Hygeia* and legislation.

In organization is strength. One person cannot accomplish what an informed body of people can. Keep up your memberships, and go after new members. Try to improve membership attendance at meetings. This can be done by having worthwhile programs; have scientific papers on medical subjects given by doctors or doctors' wives. When you miss several meetings you get out of touch with auxiliary work and lose interest.

If asked to be chairman of a health program in your club, gladly accept this, for it is an opportunity to help plan a wise and sane program which suits your community. If every doctor's wife would sponsor one worth-while authentic health program each year, our foundation would be a substantial one. Stress, or sponsor, if necessary, periodic health examination for school children, or prenatal work.

In thinking of the present day opportunities for service for a doctor's wife, like the faithful physician, himself, will never be a slacker and her greatest opportunity for service, outside her home, is in working shoulder to shoulder with her husband in his altruistic efforts to eradicate disease and, in so doing, add happiness and prosperity to all those about her. Communities and individuals are health-conscious and wish information. I heard someone say the other day that a girl from birth to the age of 14 needed her mother. From the age of 14 to 40, she needed beauty; from 40 to 60 she needed personality, and from 60 on, she needed money. This is all true, and well she might have added that she needed good health always.

With agitation for socialized medicine, it behooves us as doctors' wives to give watchful assistance in any plans to keep the profession secure. Familiarize yourself with the facts regarding socialized medicine so as to be able to converse with people on this subject when there is need for it.

The Chairman of Legislation in the National Auxiliary has asked each doctor's wife to be a registered voter. We should assume this responsibility as citizens, because democracy can function only when all the citizens vote intelligently. At this time everything that enters into our lives, school, homes and jobs, comes under the jurisdiction of some governmental agency.

Another opportunity for service that we do not want to overlook is that we as women, and mothers of the race, can do much to forward peace in this world which is war torn in so many countries.

Lastly, we do not want to neglect our social part, for friendship is the basis on which our Auxiliary was founded. There is nothing sweeter than the communion of friend with friend. The joy that is created by the companionship of those of like ideals and ambitions creates an atmosphere that lingers in the heart like sweet perfume. Edwin Markham has said:

> "There is a destiny
> That makes us brothers
> None goes his way alone
> All that we send into the lives of others
> Comes back into our own."

So, we as doctors' wives find our opportunities for services in our present times, many and varied. May we feel that although individually we can accomplish little, we can pool our efforts in the interest of efficiency and that in the end our assets will outweight our liabilities, and that although we have given much, we too, have received.

MEETING OF STATE AUXILIARY BOARD

The pre-convention executive board meeting of the Woman's Auxiliary to the Louisiana State Medical Society was held at the home of the president, Mrs. Roy Carl Young in Covington, on Thursday, February 6.

The meeting was opened as usual by recitation of The Lord's Prayer by the assembly.

Mrs. Young gave a splendid report of her busy year. She has been able to keep in close contact with the auxiliaries by her personal visits to them, as well as assisting in organizing two new auxiliaries, East Baton Rouge, of which Mrs. Cecil Lorio is president, and Iberia with Mrs. Henry J. Dauterive as president.

The reports of chairmen of standing committees and parish presidents were given, each showing much constructive work in the various auxiliaries. Among those were the following: Mrs. F. O. Tomeny, representing Mrs. M. Schudmak of Iberville, for maintaining a room in the Plaquemine Sanitarium, donations to infantile paralysis and tuberculosis funds; Mrs. J. Earle Clayton Second District, for working on increased membership, making of Red Cross layette garments; Mrs. J. W. Warren, Orleans, reported increased interest in the program of cancer control, Red Cross, Community Chest, and recent donation of $100 to the British Ambulance Service, also gifts and a substantial monthly check to an indigent widow; Mrs. V. J. Gautreaux, Tangipahoa, for sponsoring educational health programs in the schools; Mrs. Cecil Lorio, president of the newly organized auxiliary of East Baton Rouge, has a year's work well planned out, with a nicely compiled Year Book; Mrs. Walter D. Simmons, St. Tammany, reports a great deal of sewing done for the Red Cross. Mrs. J. E. Heard of Shreveport, first vice-president of the State Auxiliary, reports that Caddo Parish has been carrying out a full program which includes generous help, year after year, to the children of the Tuberculosis Preventorium.

Mrs. Heard also extended a cordial invitation to attend the State Convention in Shreveport on April 21, 22, 23, 1941. Other auxiliaries not represented at the meeting had sent their reports.

As many doctors are now entering military service it was voted to exempt their wives from payment of dues during this time. We were glad to welcome Mrs. A. A. Herold, of Shreveport, our parliamentarian, to whom this Auxiliary owes a great deal, for it was through her efforts that the Auxiliary was founded in 1929, and to whom we still look for counsel and advice.

A delightful buffet luncheon was served following the meeting.

Respectfully submitted,
Mrs. Edgar Burns.

A. M. A. MEETING

Only a few more weeks and the members of the Woman's Auxiliary to the American Medical Association will be arriving in Cleveland for their Annual Convention, June 2-6. Have you made your reservations? If not, send your request, at once, to Dr. Edward F. Kieger, Chairman of Committee on Hotels and Housing, 1604 Terminal Tower Building, Cleveland.

Respectfully submitted,
Mrs. Jonas W. Rosenthal,
Pres. and Publicity Chairman.

BOOK REVIEWS

Malaria and Colonization in the Carolina Low Country 1526-1696: By St. Julien Ravenel Childs. Baltimore, Johns Hopkins Press, 1940. Pp. 292. Price $2.50.

This is an interestingly written and well documented account of the relationship between malaria and colonization in the coastal area of eastern United States extending from Florida to Cape Hatteras. The area has been inhabited by European stock since the establishment of an English settlement at Ashley River (near Charleston) in 1670. Malaria has persisted in this area with a greater or lesser degree of virulence until this date. One can find little quarrel with the generally splendid historical account, and much to commend in the healthy skepticism manifest in the critical examinations of clinical descriptions of questionable instances of malaria. Again the excellent bibliography is to be commended. However, many may question and quarrel with some of the author's broader philosophic statements; viz, "Men being mortal, none save in fable and miracle has successfully denied that disease is mighty over the individual, but society being immortal, it is permissible to believe that parasites and viruses have played an unimportant role in social history. When the medicine man assumes the pose of prophet, it is well to recall that man's worst enemy has never been a bug."

The monograph is divided into seven chapters. The introductory chapter deals with the natural history of the malarial organism, and the general relationship between malaria and colonization. The next two chapters consider the earlier colonies which failed, and special attention is given to the Spanish Colonies and posts in Florida. The remaining chapters consider the English Colony at Ashley River. This relationship between malaria and the successful development of this colony is well presented from many angles.

This is a fine piece of original medico-historical research and is recommended to those who are interested in either malaria or in a well-organized, capably written and carefully documented medico-historical account.

B. BERNARD WEINSTEIN, M. D.

Carbon Monoxide Asphyxia: By Cecil K. Drinker, M. D., D. Sc. London, New York and Toronto, Oxford University Press, 1938. Pp. 276, 40 fig. Price $4.50.

The rapidity with which chemical energy is converted into heat is one of the measures of the tempo of an industrial civilization. It is also an index of the concentration of carbon monoxide in the air and of the incidence of both acute and chronic monoxide poisoning. Still more important, it is a measure of the challenge of this problem to the ingenuity of engineers and public health workers and of the imperative call for their collaboration to combat this menace to health.

The book is dedicated to Oscar H. Figg, "who, first as Secretary-Manager of the American Gas Association and later as an executive of the Consolidated Edison Company of New York, has worked steadily, effectively and unselfishly for safety in the use of gas." Such a dedication is an expression of the solidarity of the engineering and medical professions in their attack upon this special problem.

The book includes the essential general data on the subject in the physiologic, biochemical, pathologic, toxicologic, industrial and medical aspects. It also describes the technic of the chemical analytic methods by which the concentration of carbon monoxide can be measured.

The point of view and selection of topics, as well as the style and format of this book, can be very simply appraised: It need merely be recorded that the monograph is another contribution worthy of the previous achievements of the School of Public Health at Harvard University and of its distinguished Dean. It will be useful to physicians, industrial engineers, and others who are concerned with the problems of public health, especially during our efforts to effect an impregnable national defense.

JAMES CARL RICE, PH.D.

The Patient Is the Unit of Practice: By Duane W. Propst, A. B., B. S., M. D. Springfield, Illinois, Charles C Thomas, 1939. Pp. 219. Price $3.50.

In this philosophic treatise on the diagnosis and treatment of disease, Dr. Propst urges the physician, in effect, to remember that he is treating a human being and not merely a collection of diseased organs. It is important accordingly to utilize the "functional approach" and to direct the medical care so that the patient's way of living may be restored as nearly as possible to a normal standard. He gives examples of his method of blending the skill of the scientist with the art of the practitioner in accomplishing this.

The book is well worth reading. Its tenor is best appreciated by the opening quotation from Sydenham that "more importance is to be attached to the desires and feelings of the patient, provided they are not excessive or dangerous, than to doubtful and fallacious rules of medical art."

SYDNEY JACOBS, M. D.

Diseases of the Mouth and Their Treatment: By Hermann Prinz, A. M., D. D. S., M. D., D. Sc., Dr. Med. Dent., and Sigmund S. Greenbaum, B. S., M. D., F. A. C. P. Philadelphia, Lea & Febiger, 1939. Pp. 670. Price $9.00.

This is a well-prepared book for the student and practitioner, both dental and medical; it covers its subject as well as reviewing embryology, anatomy and physiology of the oral cavity.

The first edition was an excellent contribution to medical libraries, but the several additions to this second edition have made it even more noteworthy. A new chapter on lymphadenitis, Dr. H. R. Churchill's classification of the tumors of the mouth, as well as seventy-five new illustrations, are some of the improvements in the new publication.

The authors are particularly well qualified to present this work due to their previous accomplishments and their classroom experience as members of the faculty at the University of Pennsylvania Medical and Dental Schools.

F. HAROLD WIRTH, D. D. S.

The Compleat Pediatrician: By Wilburt C. Davison, M. A., D. Sc., M. D. Durham, N. C., Duke University Press, 1940. Pp. 256. Price $3.75.

Notwithstanding the fact that several new or revised pediatric textbooks have been published during the last year, the third edition of "The Compleat Pediatrician" still remains the outstanding book of its type in the pediatric field. In this third edition many changes have been made, and much new information has been added, making it, in many respects, a much more valuable guide than the previous editions.

Of particular interest is the last chapter of the book which lists the drugs and prescriptions frequently used in pediatrics. It is this chapter above all others which should be most valuable to the general practitioner, for unless one is constantly prescribing for an infant and child, the correct dosage of any drug is very likely to be questionable. Another outstanding feature of the book is the chapter devoted to laboratory and other procedures. In no other available pediatric source book is so much information presented in such a concise and terse fashion. Dr. Davison, realizing how easy it is to forget certain steps of the various accepted laboratory procedures, has so designed his text that with a minimal amount of effort and time the method desired can be readily brought to mind.

The medical student, the general practitioner, the intern and the pediatrician will find this third edition a veritable storehouse of information, wherein that information is obtained quickly and without too many irrelevant facts.

H. P. MARKS, M. D.

Massage and Remedial Exercises: By Noël M. Tidy. Baltimore, William Wood & Co., 1939. Pp. 458. Price 15s.

The author has written a very complete work particularly adapted as a textbook book for students of physiotherapy or medical gymnastics. Every conceivable condition to which exercises and muscle training can be adapted has been covered with the appropriate exercises for each condition described. A brief summary of the essential symptoms and pathology of each condition precedes the prescribed treatment and should be particularly helpful in assisting the student to familiarize himself with the condition which he is attempting to treat, a phase of the subject all too frequently neglected in most texts of this type.

It is very questionable whether any of our American surgeons would have sufficient confidence in a physiotherapist to allow them to remove a badly comminuted Pott's fracture or fracture of both bones of the leg from the retaining apparatus at the end of a seven to ten day period as recommended by the author, and institute active exercise. The reviewer believes the teaching of complete immobilization until consolidation of the fracture is too firmly fixed in this country to allow institution of this type of treatment.

It is also difficult to understand to just what part in the treatment of such conditions as pernicious anemia, hemophilia, chronic nephritis, tonsillitis and other related diseases, massage and exercises can be adapted.

The volume is written with the clearness of detail which is so characteristic of most English authors and on a whole is a very acceptable text for the physiotherapist and an excellent reference work for the orthopedist and surgeon who have occasion to use this type of treatment.

HARRY D. MORRIS, M. D.

The Abnormal in Obstetrics: By Sir Comyns Berkeley, M. A., M. C., M. D. (Cantab.), F. R. C. P. (Lond.), F. R. C. S. (Eng.), M. M. S. A. (Hon.), F. C. O. G., Victor Bonney, M. S., M. D., B. Sc. (Lond.), F. R. C. S. (Eng.), F. R. A. C. S. (Hon.), M. R. C. P. (Lond.), and Douglas MacLeod, M. S., M. B. (Lond.), F. R. C. S. (Eng.), F. R. C. P. (Lond.), M. C. O. G. Baltimore, William Wood & Company, 1938. Pp. 525. Price $6.00.

Not intended to replace the usual obstetric textbook, this book is written "in the hope that it will prove useful to those ambitious of passing one of the higher examinations in obstetrics." Even the rarest of medical and surgical complications, such as phlegmonous enteritis, trypanosomiasis, and sutika are mentoned briefly, with a paragraph devoted to the treatment of each.

Abnormalities of the puerperium, malformations and diseases of the newborn, and postpartal complications complete this volume which might be referred to as a dictionary of abnormal obstetrics. At least one reference may be found to any disease associated with pregnancy.

EUGENE H. COUNTISS, M. D.

PUBLICATIONS RECEIVED

Chedney Press, New York City: Merchants in Medicine, by Emanuel M. Josephson, M. D.

Interscience Publishers, Inc., New York City: Manual of Clinical Chemistry, by Miriam Reiner, M. Sc.

The Johns Hopkins Press, Baltimore: Studies on Tuberculosis, The American Journal of Hygiene Monographic Series, No. 16, February, 1941.

Lea & Febiger, Philadelphia: A Diabetic Manual, by Elliott P. Joslin, M. D., Sc. D.

The Macmillan Company, New York City: Bacillary and Rickettsial Infections, by William H. Holmes.

Charles C Thomas, Springfield, Illinois: Diseases Transmitted from Animals to Man, by Thomas G. Hull, Ph.D.

The University of Toronto Press, Toronto: The Parasites of Man in Temperate Climates, by Thomas W. M. Cameron.

The Williams & Wilkins Company, Baltimore: Emergency Surgery, by Hamilton Bailey, F. R. C. S. (Eng.). A Laboratory Manual of Physiological Chemistry, by D. Wright Wilson.

New Orleans Medical
and
Surgical Journal

Vol. 93 MAY, 1941 No. 11

THE PRESIDENT'S ADDRESS*

C. GRENES COLE, M. D.
New Orleans

I wish to take this opportunity to express my sincere appreciation and thanks for the great honor of having served as your President for the past year.

This meeting, as you well know, is dedicated to our good friend, Dr. Fred J. Mayer of Opelousas. Dr. Mayer, we salute you as a member and past President of this society and one who has always stood for the highest professional ideals and principles, and who has fought, at all times, for a higher standard of ethics. Organized medicine, in this state, owes much to Dr. Mayer and I know of no one better fitted to receive, nor more deserving of the honor thus conferred by this society in dedicating this, our Sixty-Second Annual Meeting to him. He has stood for everything that is good in organized medicine and was ready, at all times, to fight our battles and keep the practice of medicine on a high plane.

We do you honor Dr. Mayer today, as you have done us honor in the past, and we sincerely hope you will be with us many more years that we may be privileged to enjoy your wise counsel and continued friendship. All honor to you.

It is fair to state that in centuries past we had men, such as Hammurabi, Moses, Hippocrates, Socrates, Solomon, Aristotle, Celsus, Alexander, Galen, Galileo, who had as much brain power, intellect, intensity of purpose and idealism as any names that might be selected of men who are active in world affairs today. Why then the marvelous achievements since about 1850? I have asked this question a number of times recently and the usual answer is that we have the accumulated knowledge of the activities of these men over a period of centuries, which gives our people of today a great advantage. How did the experience of centuries help Pasteur in his work? What knowledge of history helped Koch discover the tubercule bacillus, Eberth the typhoid bacillus, Marconi the wireless, or Roentgen the x-ray, or helped any of the many original medical and scientific thinkers of today? It must be true that knowledge of the past centuries has had its influence upon the activities of men of action the last eighty years; but I feel this to be a small factor in our recent marvelous progress.

History is full of records of men who advanced new logical theories and facts in contradistinction to old ones, and paid for their boldness by being ostracized by their fellows, condemned by church and state, expelled from home and country, and in many instances executed. Socrates was forced to drink the hemlock, John Russ burned at the stake, and Galileo was forced publicly to retract his statement that the world rotated in space.

My thought is, that during earlier times men of ability and initiative were hindered in their thinking because of the fear of retribution on the part of the church and state and by society at large. Who knows? Galileo might have been the Edison of his age had he been encouraged and honored for his efforts instead of being ridiculed and punished. Since the Renaissance, Harvey, although recognized as a great teacher and philosopher, when he discovered and demonstrated the circulation of blood, instead of being honored and lauded for his achievement, was ridiculed by his fellows, criticized and condemned by both church and state. Pasteur and many others received similar treatment.

---

*Delivered before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 21, 1941.

When civilization reached the point where the powers of the state, the influence of the church and society at large lauded achievement, encouraged research and investigation, and honored men of action, the world began to move. How fortunate are we of this generation to have lived at a time such as this. I believe that the answer to this marvelous progress is included in the five words "Freedom of thought and action." At no period of the past centuries was freedom of thought and action permitted. Hippocrates and his coworkers made a deliberate attempt to divorce medicine from the dominion and influence of church and state so that they might develop their medical problems in their own way. Considering the times, these men succeeded splendidly, so much so that since that time Hippocrates has been honored as the Father of Medicine. Yet it took more than 2,000 years before his fond dreams really came to pass. As long as the people of the world enjoy this freedom, we will continue to achieve undreamed of heights. Take from the civilization of today this freedom of thought and action, and progress will cease. When progress ceases, we will soon go into decline. We cannot remain static. Is freedom of thought and action being throttled in the world today? I noticed a statement in the press a short time ago where Dr. Fosdick, Chairman of one of the larger of our foundations which awards millions of dollars annually for outstanding individual achievements in all parts of the world, said that the Board had removed from its list individual citizens of certain countries because they could not qualify as freedom of action and thought had been taken from them.

Is there a tendency in many parts of the world to curtail freedom and introduce a sort of managed system? We hear in our own land from the press, radio and from men in high positions, that we must prepare to adjust ourselves to a new sort of civilization; that we are facing new economic problems and are entering into a new era. What sort of new economic and cultural plans have been put into operation? The only new plans I know anything about are those adopted by Russia, Germany, Italy and Spain. In each of these a new and different type of civilization has been set up. In the last type, freedom of thought and action is being stifled and as surely as this continues, progress will cease. I cannot conceive of any new plans of action for which we are being asked to prepare that will not have as one of the chief objectives a form of managed and dictatorial type of government. If the pages of history teach us anything, it is that the moment we stifle initiative, progress wanes. We believe that the people of this country of ours have received better and more humane medical care than those of any other countries in the history of the world. This is true of all classes, rich, moderate, or poor.

Few of us ever pause, even for a brief moment, to realize the joy of living. Our lives are so full of activity we rarely take time to appreciate our happy existence, and are even grouchy and dissatisfied at times. Medical science has done much to bring us happiness and to make life worth living. For instance, we need not live in constant fear of deadly plagues, the very mention of which struck terror to the hearts of our forefathers. The people of this North American continent need not fear bubonic plague, Asiatic cholera, typhus fever, malaria, yellow fever and other diseases, which at one time spread in wicked and disastrous epidemic proportions.

These plagues and many of our common or modern diseases are under subjection through the continuous and persistent efforts of a vast army of health,—1,500,000 strong in the United States,—doctors, nurses, dentists, health workers, research workers, technicians, and numerous other groups or units constituting this great army that is fighting disease night and day, year in and year out, winning battle after battle, and pushing back farther and farther the grim reaper, death. Milestone after milestone has been passed along the march of medical science, a few of which I shall mention.

Anesthesia was discovered by Long, a physician, of Atlanta, and by Morton of Boston, by profession a dentist, working simultaneously between the years 1842-46. As a result of their work, surgery has ever since been robbed of its pain and horror; and thus began the conquest of pain. No longer need the surgeon call in the strong neighbor boys to hold down the patient while he cuts off a leg or opens the abdomen to remove a tumor. No longer need the surgeon depend on the patient's screams to be assured that he is still alive. Since the discovery of anesthesia, many new methods of its administration have been introduced, all aimed at making anesthesia safer and more pleasant for the patient.

Lord Lister, an Englishman by birth, one of the greatest benefactors of mankind, discovered aseptic surgery, and conquered the terrible scourge of blood poisoning following operations, which, previous to that time, was responsible for a death rate of as high as 80 out of every 100 patients operated upon, and which now averages only three or four out of every 100 patients who undergo surgery. Think what this means when we realize that there are performed annually in the United States approximately 3,000,000 operations, for each of which a general or a local anesthetic is given. I need not figure out for you the appalling number of deaths there would be had Lord Lister's discovery not been given to mankind. Now every part of the human body can be explored by the surgeon without the patient's being subjected to pain or to the danger of blood poisoning.

Another outstanding milestone in the march of medical science was passed in 1895 when William Roentgen, Professor of Physics in a Bovarian University, invented the x-ray. With subsequent rapid developments in equipment and operation, any part of the human body can be visualized in the live subject. No longer need the surgeon open the abdomen, the chest, or the skull to find out what is wrong; instead, he can remedy the disease or condition he has skillfully worked out and determined through his own knowledge and examination of the patient, supplemented by the x-ray, clinical laboratory, electrocardiograph, and numerous adjunct facilities to elucidate further or confirm his own findings, and thus he is enabled to practice the art of medicine more accurately and efficiently.

Pathology, the science pertaining to diseased tissue, has advanced beyond all comprehension ever since the beginning of this century, adding vastly to more accurate knowledge of medicine. Of inestimable value is this work in the study of all forms of cancer, which today is engaging the attention of the entire medical profession. Now the nature of the lump, the tumor, or the scrapings from a cavity of the body may be accurately determined within a few minutes by doing a "biopsy" which to the layman means the removal of a small piece of the lump or growth, which is frozen, sectioned, stained, and studied by a competent pathologist. In five or six minutes it is possible accurately to determine the nature of the lump or growth, and this is of extreme importance in deciding the extent of the operation required. Through such a simple procedure, numerous lives are saved annually which otherwise might be subjected to great suffering and death eventually from undiagnosed cancer.

Commencing with the beginning of this century, increasing attention has been given to nutrition and diseases of metabolism. As a result, a new branch of applied medicine has been introduced, which we speak of as diet therapy, or the application of diet to disease. More and more is diet therapy playing an important role in the treatment of many diseases, particularly that group which pertains to diseases of metabolism.

In the memory of most of us of this generation is the discovery of insulin by Dr. Frederick Banting of Toronto, who with his associates, working in his laboratory, discovered that a formerly unknown substance called insulin would control the sugar content of the blood. As you know, the blood has sugar as one of its normal constituents, but, when this sugar is excessive in amount, it becames a poison, and symptoms devolop, which are usually designated as diabetes. The work of Banting and his associates, and the further knowledge of diet therapy and blood chemistry mean that now, more than one million persons in the United States suffering from diabetes are privileged to live and enjoy a comfortable and fairly normal existence.

Shortly after the discovery of insulin by Banting, scientists working in Ann Arbor, Michigan, Rochester, New York, and Boston, discovered that the eating of liver in certain amounts would control that much-dreaded and ultimately fatal disease—pernicious anemia. Now, by taking liver in one form or another, pernicious anemia, a disease that was responsible for many deaths, is under fair control, and those who are so afflicted may enjoy a comfortable and happy life.

Diphtheria had a death rate as high as 80 per cent in some epidemics, but now, through the efforts of medical science, not only is the number of cases greatly reduced through preventive measures, but the death rate in many communities is practically nil. In this accomplishment and in the control of communicable diseases generally, we must not overlook the splendid work done by health departments and allied groups.

No longer does typhoid fever exist to any widespread extent or in epidemic proportions. Medical science and sanitation have almost completely stamped out the disease; rarely do we hear of typhoid epidemics in any part of this country. The appearance of a single case in any community means immediate action and control by the health authorities. Sanitation, vaccination, purification of water and milk supplies, and public education have driven this enemy out of our country, except for sporadic cases. Any community subjected to an epidemic of typhoid fever would practically admit lack of proper control and exercise of general measures of prevention by the health authorities.

I could go on recounting the milestones marking the advance of medical science upon each of which is recorded some victory in making the world safer and happier for the human race. Certain factors of general importance make a background, so to speak, for the great drama of the advance of medical science and the practice of medicine during the last fifty years, particularly since the beginning of this century. A progressive and scientifically educated medical profession, an approved standardized hospital where the sick and injured are treated and an enlightened cooperating public have successfully and effectually waged the war against disease.

Finally, in this great drama of the march of medical science and progress in human salvage, the annual physical examination for everybody has been brought into the arena of disease prevention, and is universally advocated as one of the most effective means of prolonging life and adding years to your life and life to your years. The annual physical examination, if properly carried out, would strike a severe blow on the six greatest killers of the human race, which today, out of every 100,000 population, take the alarming toll of 240 from heart diseases, 106 from cancer, 94 from kidney diseases, 79 from pneumonia, 68 from diseases of the arteries, and 62 from tuberculosis. All these diseases are preventable to a great degree, and could be detected early by an annual physical examination. Cancer, today the second greatest enemy of the human race, if recognized early, can be cured through surgery or the judicious use of x-ray and radium therapy.

Medical science will march on. Disease after disease will be conquered, the public will become educated in how to resist disease; the medical profession will keep abreast of the march of medical science; the longevity of life will increase beyond sixty, which it is at present; and all this will bring to humanity health, happiness, prosperity, and the joy of living.

I know of no other group in which patriotism, high ideals and the sense of responsibility are present to a higher degree than represented by our American physicians. To no other group would I leave the responsibility with less fear of error on un-American activities. "Strength to your arms and wisdom to your judgment."

At this time I would like to discuss a matter which I consider is well worth your attention.

Recent attacks on the medical profession of the United States have endeavored to create the impression that organized medicine is divided against itself and that many physicians are in revolt. The statement is untrue. We must, however, admit that a few straggling members did sign up in favor of socialized medicine some time ago but we are very thankful that this list of 400 did not play much part, or have much influence on the whole.

We have been assailed by the Government of the United States with an indictment that we constitute a monopoly and that our actions through our delegated authorities in the American Medical Association have violated the laws of this country as they apply to interstate commerce and restraint of trade.

I, for one, would like to have the American people know that I personally as a physician have been indicted by the United States Government; that the impugned reflection on the integrity of the American Medical Association is considered by me as a reflection upon myself. I believe that the rest of you feel much the same.

I should like to have every citizen of the United States know that his family physician has been indicted. Can you make that mother whose child's life has been saved think that her doctor is a knave? Can the millions of people that twenty-five years ago would have died of typhoid, diphtheria, diabetes, cholera infantum and other diseases, and who walk the streets today and enjoy life's bounty, be made to say that American medicine deserves indictment? The blind have been made to see, the lame to walk, and the ill restored to health under our American system that has never defaulted an obligation nor proved unfaithful to a trust.

I would like to have the American people know that the medical profession of this country stands united in opposition to this indictment and the attacks made on its integrity. We always have presented a united front, not only in the battle for the best public health service for the people, but in the constant seeking for better ways of providing medical service and care. That this united front exists is proved by the great attainments made by American medicine since the American Medical Association was created in 1847 for the initial purpose of improving medical education. Today our medical schools are the outstanding ones in the world. Our research centers are leading the world into new avenues of medical knowledge. Today the medical world comes to America for its post-graduate studies instead of our American physicians going to foreign countries for further studies, as was true a century ago. A united profession has attained all of these things, not for themselves but for the people, and a united profession will continue to oppose all that is inimical to the welfare of the people and fight for those things which but serve the people's interests.

What are just a few of the things which this system of medical care has accomplished in the United States? It has resulted first in the development of medical education to the highest level ever reached in any country. The young men graduating in medicine today are the equals in medical training and skill of the graduates in any country in the world. Second, after a battle of more than thirty years by the American Medical Association, almost single-handed, the evils of patent medicines and quackery have been brought almost completely under control. Third, the profession, through research and experience, has brought to light innumerable new methods for the diagnosis and treatment of disease.

And fourth, the medical profession is today, from one end of this country to the other, giving higher quality of medical care to the people than the world has ever known. That changes are necessary in our present system in order that there may be continued progress, no one will deny. With regard to the nature of the changes there is wide difference of opinion. The medical profession is at present advocating some very definite constructive measures, which, if put into effect, would result in improvement in medical care.

First, it recommends most earnestly and as a fundamental necessity a change in the method of caring for the indigent so that ultimately the entire community may assume, at least, part of the burden which has heretofore been borne entirely by the medical profession.

It has long been a tradition of the profession that every person, man, woman and child, regardless of economic or social conditions, is entitled to medical care when he is sick or injured. In accordance with this tradition, the physician has always given free medical care not only to the indigent who are dependent for their total support upon the community, but to the poor who have only a bare subsistence wage to support themselves and their families. This is the only means provided by modern society for the medical care of the poor.

I mention this not to gain your approval of the medical profession for an altruistic practice but because the medical care of the indigent has become an important social problem. If every community would accept the responsibility of taking care of its indigent sick at public expense, the problems of the medical care of the low and moderate income groups would immediately assume different proportions.

Next, the profession recommends the adoption of systematic plans in every community to provide adequate medical care to each and every class of its population. This involves the establishment of central admitting bureaus for hospitals and free clinics. The physicians and dentists will be only too glad to take care of the patients of moderate means by arranging with them to pay their medical and dental bills in installments, and the total charges may be adjusted to the patient's ability to pay.

Third, the medical profession is giving support to the establishment of non-profit group hospitalization plans in many communities through which employed persons may secure a certain number of days' hospitalization in a given year for themselves or their dependents by paying a small monthly premium.

Why does the medical profession approve group hospitalization and disapprove the usual health insurance plan? The reasons are plain and hardly escapable when once stated. Group hospitalization is a plan in which a non-profit corporation contracts with individuals in employed groups, upon the monthly payment of a certain sum, to give to the individual a certain number of days' hospitalization in a given year, the kind of accommodations and services to which he is entitled being definitely specified. The non-profit corporation at the same time contracts with each hospital of the community to pay a certain specified sum per day for definitely specified accommodations and services for the number of days for which any of its beneficiaries are hospitalized up to the limit of the contract, which is usually twenty-one days in a given year.

The important element in this arrangement which makes it sound financially and socially is the very definite and specified limitation upon the benefits to be received. So long as the limitations are respected the plan is workable and sound. Contrast with this the usual health insurance plan in which a non-profit corporation agrees to give to an individual for a certain specified monthly payment, medical care unlimited as to quantity and impossible of specifications as to quality. It is this inherent impossibility to place limitations upon the amount and kind of service to be rendered which makes such plans unsound financially and which give rise to many of the evils growing out of them.

If we are finally to adopt on a wide scale any type of health insurance in this country there are certain facts established by European experience which should be known. No advantage can be gained by copying the mistakes of Europe. We need not experiment in this country with voluntary types of health insurance because more than fifty years of European experience has proved that voluntary insurance always fails and is finally superseded by compulsory insurance. So long as membership in a voluntary insurance group is increasing it can remain solvent but when membership becomes stationary it invariably fails. When failure is imminent, or has overtaken a number of the voluntary groups, compulsory laws are passed and a great block of the population is compelled to participate in the plan. The important thing to remember is that all of the voluntary plans finally become compulsory insurance under state control.

There have always been optimistic promises made in each country when the plans were before the voters. It was claimed that they would reduce the sickness rate and also the mortality. This has not come true. No insurance country can show lower rates either from sickness or death than the non-insurance countries. It is a known fact that the sickness rates in insurance countries practically doubled over the rates prevalent before insurance went into effect and over the rates in those countries which do not have insurance.

It was said that because of better organization the costs of medical care would be less with insurance methods. The fact is that because of the increased sickness rates and the high cost of administration, expenses are greatly increased.

Finally, it was alleged that a better quality of medical care would be obtained, but it is a notorious fact that the crowded rosters of insurance and contract doctors furnished a very poor quality of medical care.

The voluntary insurance plans called "group health associations," and various other names, which are at this moment springing up in this country, are repeating these old and discredited promises. Again we are being told that they will so improve the health of their subscribers, especially through periodic examinations, as to reduce the mortality and sickness rate among them. It can be confidently predicted from experience that the death rate will remain unaffected and that the days lost from sickness will be greater in the insured group than in a like group of uninsured.

It is the fashion at present to point to these voluntary insurance groups as valuable social experiments. In the light of European experience no such experiments are needed, but there is one unsocial aspect of their operation which has not been sufficiently emphasized. They are of necessity confined to members of employed groups; when a person loses his job he loses his insurance. If he is then without funds, both he and his dependents must be taken care of by one of the physicians of the community who has had no participation in the group health association and who, year in and year out takes care of his patients when they are out of employment just as he does in their years of prosperity. This illustrates the unsocial character of such experiments. They apply only to members of those favored groups who are able to pay insurance premiums for themselves and their dependents, and to them only while they have a job.

If we are finally to have insurance medicine in this country, let us not delude ourselves into experimenting with the voluntary or cooperative type; let us adopt the only kind that can survive, namely compulsory insurance. Let us go into it with our eyes open, remembering that it necessitates a wage and pay roll tax and a government subsidy with a high degree of governmental control to make it successful. Let us recognize the fact that there must be in a country like ours much political control and manipulation and establishment of an elaborate bureaucracy for its administration; and finally let us be satisfied with medical care of much lower quality than we are receiving at present.

The medical profession is a small body of men, only about 150,000 in a population of 130,000,000 people. The profession must adjust itself to whatever social system the 130 millions decide to adopt. We are, however, because of our special education and training, in a position to judge of the effects of proposed methods of medical care. It is our conviction that the present system can be and is being adjusted to every need of the people without the evils of health insurance or state medicine.

We hear a great deal nowadays about "salvaging civilization." Few are agreed as to how it is to be done, but certainly it is impossible to imagine any civilization in which the discoveries of medical science will not be incorporated. No matter what sort of banking or economic or social system is established, physicians are not going on without using the knowledge of the circulation of the blood, of the bacterial cause of infection, of aseptic surgery, of the obstetric forceps, of the action of anesthetic drugs, of the use of opium, digitalis, and mercury, of the principles of refraction of the eyes. Whatever else is "salvaged" these most assuredly will be saved.

For devoted service, for the highest expression of generosity and good will, the physician occupies a place quite incomparable. The story told by Ian Maclaren in the "Bonnie Brier Bush" of old Dr. McLeod is not exaggerated or overdrawn. It is a tale that may be duplicated in any community. One must believe concerning men of this type that they are motivated by the highest of impulses, and that their ministry is associated with that of the Master, who never turned away from those who were bruised and broken in body.

Like a team of two horses slowly pulling a heavy load out of the mire, the family physician and the specialist are, side by side, slowly but surely liberating the human race from the depths of disease. Their combined value cannot be measured in dollars and cents but rather in years of additional life. Together they constitute the greatest team on earth.

REFLECTIONS ON EDMOND SOUCHON (1841-1924)*

BY A FORMER PUPIL

ISIDORE COHN, M. D.
NEW ORLEANS

"LEST WE FORGET"

Those who entered Medical College in New Orleans at the turn of the century (1903), were extremely fortunate in that the faculty of the Medical Department of Tulane University was composed of seven outstanding men. Each possessed definite characteristics, each contributed something to stimulate the young men then entering upon the threshold of their medical studies, something to inspire the boys of that day; something to impress them, so that memory like an illuminated mirror would "bring back the light of other days." (With apologies to Thomas Moore.)

Of the seven distinguished men who formed the faculty, only one remains to cheer, stimulate, and to inspire us, Rudolph Matas.

When we mention the names of Chaillé, Souchon, Metz, Reynaud, Lewis, Elliott, and Matas, we do so in reverence and appreciation.

The subject of this sketch, Professor Edmond Souchon, "was unique, he had his characteristics, and he was peculiar in that there was no one else just like him."

From the very moment a student entered the course in anatomy, he was reminded of several things: (1) That our professor differed from Gray in that "Gray was an anatomist, but he, (Souchon), was both an anatomist and an artist." (2) He impressed upon us that the most important book from which we could learn anatomy, was the book of nature, that is, the human body.

Those who were fortunate enough to study anatomy under Professor Souchon, will remember his "Resumé," and his quizzes. This Resumé of Dr. Souchon's was characteristic of the man. It was written in accordance with a statement made by him in the pamphlet entitled "Methodic Description of a Surgical Disease": "There is a place for everything and everything should be said in its place. We should say at the beginning what belongs there, and not say it in the middle of the description. Again, we must say in the middle of it what belongs there and not say it at the end." (Article published in the A. M. A. July 11, 1896.)

---

*Read before the Orleans Parish Medical Society, November 11, 1940.

Souchon's "Resumé" was written in catechismal form. These "Resumés" were not easy to obtain, and this he knew full well. For that reason he would have each week posted in the Anatomic Museum, under glass, at least six to ten typewritten pages of questions and answers, which had to be memorized for the following Tuesday night's quiz. This quiz was typical of our Professor. The quiz was held on the third floor of the Richardson Memorial Building on Canal Street, and the setting for the room was something not to be forgotten. The desk behind which he sat was a wooden anatomic table which was covered with white canvas, so familiar as a covering for anatomic material. Behind this table there was a small box, and immediately behind that was a chair which was raised on galvanized supports. Promptly on the hour, Dr. Souchon would appear and seat himself in the chair, the box served as a footstool. Seated beside him he would have a member of the class who would read the question to the student whose name Professor Souchon called. If the answer was not promptly forthcoming, our Professor would turn to the reader and say: "Read it to him, he does not know it—if he does not know it he cannot guess it. I will give you a zero, I will keep the one for myself," and with that invariably he would give a characteristic chuckle.

Some of the class who had not properly prepared for the quiz would sit in the higher tiers of the amphitheater with a book open in front of them. At times they would be startled by getting a question not in the order in which they were reading the answers. The student would read the answer to the question either before or after the one which was asked. This would always evoke from Professor Souchon, the remark: "You are reading the wrong answer."

Some of the questions and answers were unique. A favorite question with him was: "What is the peculiarity of a certain organ?" The answer: "It is characteristic in that it is unique, there is nothing else like it in the human body." One of his favorite stumpers was, "What is the relation of the two carotids at their origin?" The answer which he required was, "The external is internal to the internal at its origin." No other answer would suffice. You either knew the answer which he desired or you did not. There was no way of guessing with him.

His lectures on anatomy were interesting as they were illustrated by beautifully colored slides. The mere mention of these lectures accompanied by lantern slide demonstrations will recall to the minds of those who took these lectures that he utilized the services of "the professor of practical hygiene" (as the janitor, Alfred, designated himself). One can almost hear Professor Souchon say, when the slide was not clear, and the light was not properly focused—"Alfred get the blue out of the corner."

It was his conviction that in order that one might do surgery, he must know anatomy. One of his favorite expressions with reference to locating a particular structure was: "If you know where it is and you hunt for it where it is, you will find it. If you do not know where it is, you will not find it," and again he would chuckle.

On one occasion I was so impressed by his knowledge of the relations of the most minute structures, that I ventured to ask him the question: "Professor Souchon, how do you remember details so well?" His answer was: "I studied it seventeen times, I forgot it sixteen times, but I remembered it the seventeenth time," and with that came his characteristic chuckle.

May I pause at this point to remind others that there is a tremendous amount of inspiration in that remark. Anyone who would qualify to do surgery should continually review his anatomy.

In the wards and in the operating rooms the students were taught diagnosis by method. They were particularly charged not to make the diagnosis of rare conditions, but to think in terms of the more common conditions. For those who would get a clearer view and a more detailed one than I can give at this time, I would refer you to his papers "The Methodic Description of a Surgical Case"; "Pecularities of the Surgical Diseases of the Neck," and other similar papers.

In the operating room there are two pictures which stand out vividly. The first was that of Professor Souchon preparing to do a hemorrhoid operation. He would stand either to the right or to the left of the patient while dilating the sphincter, then turning to those of us in the amphitheater he would say: "I give you the benefit of my twenty-five years' experience; when operating on the rectum stand to one side."

On one occasion having noted that he so often in the early weeks of the College term had amputations for the class, I ventured to ask him why it was that he picked out an amputation. His answer: "The boys want to see blood and I will show it to them."

At this stage I must pause to compare the operating rooms of two of our teachers. One —Dr. Souchon, the other, Dr. Matas.

In doing an amputation, Dr. Souchon was in the habit of using a large amputating knife. After he had made the circular section of the muscles, and his first assistant, his son Dr. Marion Souchon, had ligated all the vessels for the control of bleeding, Dr. Souchon would step up and with the old large butcher saw section the bone. Having done this he had completed his part of the operation, the remainder was finished by his associate Dr. Marion Souchon.

Probably the next day, we would go into the amphitheater and Dr. Matas would have an amputation. By contrast he used the scalpel and a Gigli saw. We were thus seeing the transition between those who had been trained in the pre-Listerian days when speed was the keynote, and one whose training came after the beginning of the Listerian or antiseptic period.

One cannot omit those reflections of memory of another phase of our distinguished teacher, the picture of him in his museum of anatomy. If he happened to be walking through and some of the students were studying the specimens in the jars, he would come up and point out the interesting points on his specimens. I do not believe that anyone ever got greater joy out of an accomplishment than did Dr. Souchon out of the method which he devised for preserving anatomic material in its natural color.

The museum of anatomy, which was Dr. Souchon's pride and joy, is the established memorial to his continuous service in anatomy at Tulane from the day of his return from France in 1866.

This story is best told by Dr. Souchon himself in his reminiscences of Dr. T. G. Richardson. The loyalty and devotion expressed in these reminiscenses prompts me to abstract rather freely from Dr. Souchon's own pen.

"In November 1866, on the day of the Feast of the Dead I landed in New Orleans after an absence of over ten years in Paris. I had in my pocket a letter from Dr. Marion Sims to Dr. Richardson. The day following my arrival I called upon the doctor to present it. After reading the letter from Marion Sims, Dr. Richardson extended his hand, uttering a few words of greeting. As soon as his hand touched mine, and I felt the soft and firm pressure, there came from it and passed through me a magnetic fluid that went direct to my heart and gladdened it. Richardson was busy and he bade me return soon, tomorrow. Indeed I returned and we had a long talk on surgical matters in Paris; about Dr. Sims and his achievements and glory; about my plans for the future. When I arose after a longer stay than I should have made, he stepped to his desk and handed me a key, he said, 'I would be glad if you would use this office and these books and instruments, in fact, all that is in here, until you have a place of your own'."

Dr. Souchon relates that one day Dr. Richardson came to his office a little annoyed, "because his prosector had failed to come on time to prepare the dissections necessary for his lecture. I at once eagerly seized the opportunity to do something that might please him, and offered to do the dissection at once. From that day on I did all his prosection and attended all of his lectures to learn anatomy in English and how to teach it properly."

I would not be worthy of the opportunity which is mine to present a biography of Souchon if I did not let him give his own picture of his distinguished friend Dr. Richardson, Professor of Surgery at Tulane, who, with his wife, gave the original Richardson Memorial on Canal Street. Dr. Souchon said: "Dr. Richardson—as an operator especially he had no superiors, planning carefully and deliberately an operation and executing it fearlessly to the very end. To him the word duty came next to the word gospel; he was truly a living example of the accomplishment of all duties; he was thoroughly self-sacrificing to the extreme. His friendship was profound and as true as steel. His veneration for his old friend and preceptor Dr. Gross, was most profound and touching. We were all very much struck by it when Dr. Gross came to New Orleans in 1880. No wonder that one who could feel so keenly gratitude and friendship should inspire as he did himself most unselfish and unremitting admiration and respect.

"Dr. Richardson died without having witnessed the completion of the new Tulane Medical College, which was an object for several years very dear to his heart. He realized more than any, even during his martyrdom, how important it was to have a building and equipment that would enable this great city, so beloved by him, to compete with the other cities in the thoroughness of medical education. Thus his influence and example, so great during his lifetime, will stand for many and many generations endearing his name to all who love science and humanity." (This building has since been demolished. Its place is occupied by a gas station at Canal and Villere.)

Probably the prosection which gave Dr. Souchon greatest joy was that of the celebrated case of Andrew W. Smythe, who for the first time cured an aneurysm of the third portion of the subclavian by ligation of the common carotid artery in 1864 (secondary hemorrhage occurred on about the tenth day, at which time ligature of the vertebrae was performed and the aneurysm closed). "Ten years later the patient came back with a tumor as large as ever. The internal mammary was ligated but without benefit. The sac threatening to burst, was opened with the hope of plugging the opening of the aneurysmal artery but in vain. Plugging en masse was effected without avail. The patient died of hemorrhage within forty-eight hours. The autopsy was made by the writer. It showed that the return circulation was due to the anastomosis of the perforating aortic intercostals with the branches of the sub-scapular in the substance of the great serrate muscle, through which the blood flowed freely through the axillary into the sac.

"A few hours after the poor celebrated patient had died, the body was carefully embalmed and with great solicitude injected with cocoa butter and carmin, which gave a most penetrating injection. As soon as ready, I started dissecting it, with most intense and anxious interest and with as much celerity as possible because the friends of the dead man were chafing to have the remains to bury them in a style befitting such an illustrious personage. He had no family, but belonged to a colored association whose members were very proud of the great celebrity the man had acquired as they judged from the attention and curiosity which followed him in all his movements.

"They were pressing and impatient in their demands for the body and we were giving them all kinds of excuses hoping to wear out their patience. I for one was doggedly determined that they should not have him without dividing with me, and I wanted the lion's share.

"One morning as I was getting through with the dissection, I heard a great row in the waiting room of the dead house. This was then situated on Gravier Street, whereas the entrance to the hospital was in front, of course, on Common Street, a distance of about 300 feet.

"I recognized the voice of Dr. Smythe clamoring over the others trying to pacify them again. He had a great influence over them being himself a Republican, but this time I thought his prestige was fast ebbing away and I decided upon a bold coup d'état to preserve the to be world-renowned specimen. So I quickly separated the interesting parts from the balance of the corpse, wrapped them up in an old sac that happened to be lying there and pushed the package out through a back window to an assistant keeper of the dead-house, telling him to carry it to my coupé which was standing in front of the hospital. I then leaped out through the same window and took the garden-walk opposite to the carrier, that he might not be suspected. I reached the front door of my carriage before him. Taking the much coveted specimen from the carrier and placing it tenderly on the seat next to me I drove off at once to the college, hugging closely my precious and ghastly companion.

"After resisting the dead man's friends as long as he could, Dr. Smythe, had to yield to them. But judge of their shock and horror when they saw all that was left of their saint, two legs with the viscera and a left arm, without being able to find out where the balance had gone and by what way. I do not think they know it to this day. They had to be contented with what they could get and they made as much over it as if it had been the whole of their friend. Dr. Smythe himself was much surprised and as much at a loss as they but happily so. He was very glad when he learned where the specimen had gone. It was some satisfaction, he said, to be able to prove that all arteries he said he had ligated had really been tied.

"From the college I moved the specimen to an adjoining building for fear that the enraged friends might institute a search for him. There he remained, quite unknown to all but myself in an old whiskey barrel filled with water and alcohol. I could ill afford to keep him in a finer style, however deserving of it was he. Besides, I did not care to exhibit him much, anyway.

"After a year or so later Professor Richardson asked me where the famous dissection was. Having told him and what a drain he was on my shallow treasury he asked me if I would consent to have it sent to the Army Medical Museum, in Washington City, to which I gladly consented at once. There I felt sure he would be treated in a manner becoming such a unique relic.

"Dr. Richardson and Dr. Groenvelt arranged to have it sent to Washington, where it now rests in peace and security in all its glory in a beautiful glass box with a fine crystal lid, bathed over head in pure alcohol, the admiration of all who love subclavian aneurysms of the third portion."

Dr. Souchon's medical career began in Paris in the fall of 1860: "I entered the old charity hospital on the old rue Jacob as a benevolent student in the service of the venerable and the world renowned Professor Velpeau. It was my first beginning in the study of medicine. I managed to be on as fairly good terms with Professor Velpeau as a little insignificant nobody like myself could be with such a magnate as was the great Velpeau in such a place as the great Paris at that period."

Early during the year of 1861, while attending to his duties in the hospital in Paris, he chanced to meet an American visitor, who proved to be J. Marion Sims. The meeting of this distinguished American is told in Dr. Souchon's own characteristic way: "I was putting on my apron when the stranger came up to me, and after a most suave bow, said in a very low and deliberate manner, that the Frenchman that he thought he was addressing might have some chance of understanding: 'Will—Professor—Velpeau—be—here—today?' I burst out laughing and answered him in fluent English: No sir, Professor Velpeau is absent on his vacation and will not return before two weeks. The beautiful face brightened up at the sound of the English language where and when he so little expected it. 'Where are you from that you speak English, said he?' I am from the South, from New Orleans, said I, thinking that would cool his enthusiasm if he was a Yankee. But, far from it, he grasped my hand and pressed it so as to crush it. 'Why, I also am a Southerner; I lived a long time in Montgomery, Alabama.' That made us friends at once.

" 'Well,' said he, 'I am Marion Sims, now living in New York, who has invented a method of operating for vesico vaginal fistula with almost invariable success.' He looked at me to see if the name had made any impression on me, but it fell flat; we had never heard of Dr. Marion Sims in Paris.

"He said he had a letter for Professor Velpeau from Dr. Valentine Mott, of New York; that he was anxious to see the professor to get a patient to operate on before him and thus to demonstrate his method. 'Well,' I said, 'the professor will be here in some fifteen days,' soon enough for your good, I thought to myself.

"Finally Professor Velpeau arrived, and I sent word to Dr. Sims immediately; he soon came to present his letter, which Velpeau read at once and fluently, but when it came to speaking to Dr. Sims, he was at a loss to express himself and looked around for me.

"After a few, very few words, Velpeau said to me, 'Well, what does he want?' I translated the sentence to Sims, who at once modestly but firmly answered, 'I want a case to demonstrate my operation, if the professor will be kind enough to procure one for me.' 'All right,' said Velpeau, 'I will get him one,' in a way that showed he had but little confidence in the final result. Then he turned around without a hand shake or a word more to Sims and went on with his visit.

"From that time on the doctor's history is known to all Americans proud of the surgical genius born in our great land.

"One day he said in a burst of kindness: 'How fortunate it was for me to have met you that morning I went to the old Charité, I was so thoroughly discouraged that I made up my mind to go back home.'

"One day in his house, in the rue de Balzac, we were alone in his studio when he all at once asked me: 'How are you getting along here, anyhow.' 'Well,' said I, 'I am starving as slowly as I can. All resources from home have ceased since the war began, and but for a little position of $20.00 a month, which Professor Velpeau's influence secured for me, I would have succumbed to hunger and cold by this time.' He replied: 'Anything you need I will be glad to give you; I am making plenty of money now.' I thanked him very much but gratefully declined any assistance."

The following year Souchon found himself in great need and he went to Marion Sims. "After a little trivial talk I summoned up all my courage and said to him: 'Doctor, you once told me that if ever I was in need to come to you, and that you would help me along. Well I am now in the greatest distress and upon you depends my whole future; unless you give me today the assistance you offered me two years ago I must give up my study of medicine.' 'Oh, no,' said he, 'don't do that. I will help you certainly. How much do you want?' 'Thirty dollars per month will suffice,' said I. 'What,' said he, 'a dollar a day. Oh, no, take two.' I thanked him very gratefully but consented to accept only one dollar and a half a day, remarking that I might never be able to return that little even. 'All right,' said he, 'I will take my chances on that.' He retired to his library and soon returned with a check for the first month in advance, and also for several hundred francs to buy some little furniture and clothing which he said I very likely needed. I should think I did need them. From that time the check came every month, no matter where he was —in France, England, Germany, or America. He never forgot it once, and when it happened, very rarely, that he was a few days behind, he would write a few words of apology."

This financial aid, evidence of friendship, Dr. Souchon never forgot. In closing his reminiscences of Sims—Souchon said: "He was surely one of the most magnetic men I ever met, and he made such a deep impression on me by his genius, his energy, his courage, his goodness, his kindness, his gentleness that for many years of the early part of life he was the model and the guiding star I strove to follow."

As a token of his great appreciation, and loyalty of Sims, Dr. Souchon named his son Marion after his own benefactor.

The second epoch-making date in his life was his meeting with Dr. T. G. Richardson, through the good offices of J. Marion Sims. As we have seen he became Dr. Richardson's assistant and prosector in the Department of Anatomy. In 1872, he became the demonstrator of anatomy in the Medical Department in the University of Louisiana, afterwards Tulane. In 1885, he was elected Professor of Anatomy and Clinical Surgery, which chair he filled until 1908. He retired in 1908, with the title of Emeritus Professor of Anatomy and Clinical Surgery.

The memoir of Dr. Souchon, for the American Surgical Association, was written by Dr. Matas. "In surgery he was essentially an operator of the anatomical era. He had been drilled in the quick, typical, and methodical manual of the French School of the sixties, where the traditions of the pre-antiseptic period still lingered and rapidity was still held at a high premium. He naturally excelled in all operations which required a knowledge of anatomy. His monographs on the subclavian artery and on dislocations of the shoulder joint will remain conspicuous landmarks in the history of these subjects and are undoubtedly the most enduring literary monuments of his surgical career."

Dr. Souchon was elected President of the State Board of Health of Louisiana on January 31, 1898. One of his first acts of his administration was to prepare a sanitary code which embodied all the health laws of Louisiana. This book, of over four hundred pages, is now regarded as the most complete and useful guide to the health laws and sanitary regulations of the state.

Dr. Souchon served as President of the State Board of Health for seven years, under three Governors, and when he resigned on January 8, 1908, he left a record of efficiency and accomplishment that fully justified the expectations of his friends at the time of his election.

In speaking of Dr. Souchon's personal characteristics, Dr. Matas said: "He had two dominant traits that over-shadowed all others, his passion for punctuality and method. His day was planned for the twenty-four hours, in which every hour was accounted for on a predetermined schedule. He chafed and fretted under irregularities of any sort that interfered with the prearranged distribution of his day's work. He rose before dawn and had completed his more pressing rounds by the time most men were sitting at breakfast. He had a remarkable appreciation of time and his appearance at a consultation marked the hour of the day as faithfully as the sun. His passion was order; system and classification was consistently carried out, even in the most ordinary cares of the household. Disorder was as distressing to him as his rigid discipline was uncomfortable to others not trained to his system.

"Though seemingly unsentimental at times and with his attention wholly engrossed in the business at hand, he was capable of great outbursts of enthusiasm and expression, which he displayed with all the volubility, vivacity and gaiety of the French that was in him. His loyalty and devotion to Marion Sims and Richardson, who had befriended him in his struggling youth, will always be quoted by those who knew him as proof of the undying quality of his friendship and affection."

In proof of this last statement by Dr. Matas with reference to Dr. Souchon's undying quality of friendship and affection I quote from the editorial in the New Orleans Item, September 29, 1894:

DR. MATAS THE MAN

"The medical faculty of Tulane University has won the approbation of the community by its selection of Dr. Rudolph Matas, as the successor to the late Dr. A. B. Miles. Dr. Matas is recognized as one of the ablest surgeons in the United States, and when Tulane University made a tender of the chair of surgery to a stranger, surprise and dissatisfaction were plainly manifested by the medical profession and the public of New Orleans.

"Dr. Tiffany, the gentleman first selected to succeed Dr. Miles, must have been advised of the feeling against him, and it is quite probable that this fact largely influenced him in the declination of the honor which had been offered him by Tulane University.

"The question then arose, who shall be the man? The two surgeons most prominently mentioned were Drs. Matas and Souchon, and it was decided that a choice between them would have to be made. Both possessed splendid qualifications, both had warm friends. Who shall be the chosen one?

"The faculty is to be congratulated upon its action—every one approves it. Dr. Souchon himself is delighted, for he worked heart and soul for the success of Dr. Matas.

"What a splendid instance of friendship and disinterestedness was that furnished by Dr. Souchon. Himself a surgeon of the highest repute, and by university rules, next in succession to the chair of surgery, his friends urging his promotion and nothing to be said against him—he throws the full weight of his influence in favor of Dr. Matas, who was a step below him in professorship at Tulane University, and relieves the faculty of all embarrassment by himself urging and inducing his friends to urge the selection of Dr. Matas. A noble man, Dr. Souchon.

"And what did Dr. Matas do? Labor with all his might in the interest of his friend and confrère, Dr. Souchon; he did all he could to prevent the gratification of the dearest of his own heart, in order that Dr. Souchon might be the man to fill Dr. Miles' place.

"The respect of the public goes to these two distinguished surgeons. They have proved in this contest that they were two of nature's noblemen; that their qualities of heart were equal to their qualities of head—that they were men in whose character, as in whose professional skill people can repose the most implicit confidence."

What of Dr. Souchon's accomplishments. As a result of his habits or precision in method, the memorials which he left behind stand as classic monuments for those to whom duty well performed is a human service which is its own reward.

Dr. Souchon listed in his pamphlet entitled "Original Contributions of Louisiana to Medical Sciences," many of his own accomplishments. From these I have selected a few:

1. Preservation of anatomic dissections with permanent color of muscles and organs by two methods.

2. Founded the Souchon Museum of Anatomy at Tulane University.

3. Complete history of drilling holes through the skull to explore with syringe and needle.

4. First complete history of the treatment of abscesses of the liver by aspiration.

5. Wrote the first formal sanitary code in America for the Louisiana State Board of Health.

6. Designed the floor plans of the Richardson Memorial School of Medicine of Tulane University. It was the largest and most elaborate under one roof medical college in America.

We are fortunate that we can claim as our heritage that we had Edmond Souchon as one of our teachers. He never let us lose sight of the importance of method in study, precision in knowledge, and punctuality in attention to duty.

By his own life and acts he left with us a beautiful story of gratitude and devoted friendship. These were the components of the character of one whose life's work and accomplishment should stimulate the student of medicine to emulation.

"Lives of great men all remind us
We can make our lives sublime,
And, departing leave behind us
Footsteps on the sands of time;
Footsteps, that perhaps another,
Sailing o'er life's solemn main,
A forelorn and shipwrecked brother,
Seeing, shall take heart again.
Let us, then, be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labor and to wait."

(A Psalm of Life, Longfellow.)

TREATMENT OF POSTOPERATIVE ADYNAMIC ILEUS AND OBSTRUCTION OF THE SMALL BOWEL WITH THE MILLER-ABBOTT TUBE*

I. W. KAPLAN, M. D.†
AND
MARSHALL L. MICHEL, M. D.
NEW ORLEANS

INTRODUCTION

Intubation methods of decompressing the gastrointestinal tract have become, during the past several years, extremely important in treating intestinal obstruction and postoperative adynamic ileus.

Matas, Ward, Bassler and others were early advocates of gastrointestinal decompression for the relief of harmful accumulations of gas and liquid contents in the upper reaches of the intestinal tract. Wangensteen and Paine advocated continuous duodenal drainage.

In 1933, Miller and Abbott demonstrated the use of a double-lumen, balloon-tipped tube for intubation studies of the small intestines of animals. By this method it was possible to study the nature of the secretions in various parts of the gastrointestinal tract, the influence of changes in gastric acidity on intestinal secretions, and the effects of various drugs on intestinal motility.

However, it was not until February, 1938, at a joint meeting of the New York Surgical Society and the Philadelphia Academy of Surgery in Philadelphia, that T. Grier Miller, W. Osler Abbott and I. S. Ravdin first suggested the clinical use of such a tube in intestinal obstruction. Since that time a number of reports from different localities indicate that intubation of the small intestine by means of a double-lumen, balloon-tipped tube is an important advance in the treatment of intestinal obstruction and postoperative adynamic ileus. Miller, Abbott, Wise, Pendergrass, Karr, Noer, Johnston, Penberthy, and others have reported successful clinical use of this intestinal intubation method.

At the suggestion of Dr. Urban Maes, this study concerning the value of the Miller-Abbott tube in the treatment of obstruction of the small intestine and adynamic ileus has been made for the past eighteen months on the Surgical Service at the Touro Infirmary. The results have been so gratifying as to indicate that this procedure has completely revolutionized the treatment of postoperative adynamic ileus and obstruction of the small bowel, and the method has been used in a sufficient number of cases to justify certain conclusions in this preliminary report.

Herein we shall discuss the pathologic physiology of paralytic ileus and obstruction of the small bowel in order to explain the rationale of treatment, and we shall point out the results obtained in 30 of our patients.

PATHOLOGIC PHYSIOLOGY

Once obstruction of the small bowel exists, even to a slight degree, if it is not treated, it may pass a transitory state and produce progressing intestinal obstruction.

Because the stomach and bowel secretions continue but do not pass on, there is an accumulation in the bowel with distention. The bacteria in the bowel content increase very rapidly, as do the secretions. Some of the bacteria are gas producing; other sources of gas are swallowed air and the diffusion of carbon dioxide from venous blood. Ultimately, this retarded content of the bowel, because of chemical and bacterial action, becomes very toxic. As a result of distention and toxicity, the increased pressure in the bowel compromises the circulatory pressure, necrosis and digestion of the mucosa occur, and liberation of another toxin results. The distention may increase until relief is obtained by overflow into the stomach, with vomiting, or the distention may cause paralysis, thus establishing a vicious circle. The effect of distention on the dynamics of intestinal activity and on respiration and circulation has been adequately pointed out during the past few years.

---

*Read before the Orleans Parish Medical Society, October 14, 1940.

†From the Department of Surgery, Louisiana State University School of Medicine, New Orleans.

REPORTS IN THE LITERATURE

The part which distention plays in obstruction has been reviewed by Herrin and Meek. Van Zwalenburg showed that intraintestinal pressure of 90 mm. of mercury delayed the flow of blood through the intestinal vessels, while a pressure of 130 mm. of mercury stopped it entirely. Dragstedt, Lang and Millet found that the duodenum, jejunum and ileum were sensitive to increase in the intestinal pressure, in that order. Burget and his associates have shown that in isolated intestinal loops distention results in vomiting, anorexia and, finally, rupture of the loop and peritonitis, while these factors are not present as long as distention of the loop is prevented. Herrin and Meek, attempting to explain the symptoms and fatal outcome which follow intestinal distention, found that mechanical distention of loops completely separated from the continuity of the gastrointestinal tract resulted in: (1) A depression of activity; (2) retching; (3) loss of appetite; (4) vomiting; (5) rapid pulse and, finally, (6) death. There occurred also a decrease in the chloride concentration, a loss of plasma, and a rise in the non-protein nitrogen. The hemoglobin increased considerably and as a rule there was a moderate increase in the alkali reserve.

Plumier, Thorington and Schmidt, Frey, Dmitrenko, McIver, and Runge have all studied the effect of increased abdominal pressure on arterial or venous pressure, or on both. Thorington and Schmidt showed that marked increase in intra-abdominal pressure so influenced the circulation of the kidneys as to reduce seriously renal excretion.

Brams, Katz and Kohn have reported the effect of abdominal distention and release of such distention on the blood pressure in the carotid artery and in the veins above and below the diaphragm. They have shown that rapid or even gradual increase in intra-abdominal tension may profoundly affect the dynamics of circulation. After release of marked abdominal distention which had persisted for some time, the fall in the arterial pressure was as much as 40 mm. of mercury.

Beecher measured the effect of laparotomy on the respiration. It is, of course, well known that distention decreases the pulmonary ventilation. Churchill and McNeil described a marked reduction of the vital capacity following abdominal operations.

It has been pointed out by Dragstedt, Gatch and others that a poisonous substance of bacterial origin which is not absorbed by the normal intestinal mucosa is absorbed when that mucosa is damaged by distention. Dragstedt has further pointed out that in dogs, because of the thick muscular intestine which enables them to resist a much greater distending pressure without dilatation, vascular damage to the mucosa occurs less often than in human beings, whose muscular walls are much thinner.

In intestinal obstruction, the bowel above the site of obstruction is commonly greatly distended and increased in length. The increased length of the distended, obstructed bowel produces segmentations, so that the lumen is occluded by sharp kinks at intervals of 10 to 12 inches. Vacuum nasal suction by use of the duodenal tube decompresses the upper intestine but fails to decompress the lower intestine, due to this segmentation. The Miller-Abbott tube, on the other hand, traverses the entire small intestine, removing this segmentation.

TECHNIC

The technical difficulties encountered in using the Miller-Abbott tube are often so intricate that considerable experience is necessary for its correct use. In order to secure maximum benefit from the use of the tube, the procedure must be carried out under the closest supervision of the surgeon and with the cooperation of the resident staff, nurses, and radiologist.

In all cases in this series the regular Miller-Abbott double-lumen tube was used. The length of the tube is 10 feet and the diameter is the same as that of a No. 16 French catheter (tubes of No. 14 and No. 18 French diameter are now available).

The balloon is tested, completely deflated, and wrapped closely around the end of the tube, which is then well lubricated with

K-Y jelly or mineral oil. The distal three or four inches of the tube are then threaded upon a small wooden applicator by passing the applicator through one of the drainage holes to the end of the tube. This gives the tube some rigidity, making it easier to pass. The tube is then inserted through the mouth or the nose, preferably the latter, as it is often desirable to have the patient take fluid or food by mouth. With the use of a wooden applicator to make the end of the tube rigid, we have never found it impossible to introduce a No. 16 French tube through the nose. When the end of the tube reaches the pharynx, the applicator is removed and the tube is passed down the esophagus to the stomach, as the patient swallows small amounts of water to assist in its passage. When the tube has reached the stomach, a small amount of excess tube is left in the stomach. The patient is then placed on his right side and encouraged to take small amounts of liquids at frequent intervals. After four to six hours, the patient is placed under the fluoroscope to check the position of the tube. Usually, the end of the tube is in the small intestine; if not, the tube must be pulled back and manipulated under direct vision until the end of the tube is at or past the pylorus.

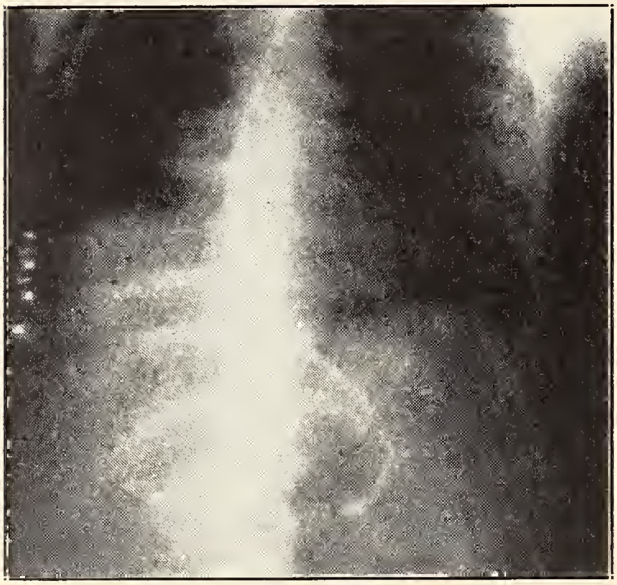


Fig. 1. Photograph showing Miller-Abbott tube in stomach with tip of tube at the pylorus. The balloon is deflated.

The only certain method of directing the tube into the duodenum is to insert it under the guidance of the x-ray or the fluoroscope. If the patient is too ill to be transported to the x-ray department for fluoroscopic studies, the position of the tube is judged by the character of the material aspirated. When this material is definitely duodenal in character, it is concluded that the tip is at or in the pylorus. The patient is encouraged to remain on his right side and to take small sips of water, as mentioned above. Subsequent x-ray studies with a portable apparatus will usually reveal the tip of the tube to be in the small intestine. Often a large dose of atropine sulfate, gr. 1/75 by hypodermic to adults, in order to release the pyloric sphincter, will facilitate the passage of the tube into the small intestine.

The type of material aspirated cannot always be relied upon to tell the position of the tube, for often the material in the small intestine will overflow into the stomach, especially if the degree of distention is great or if an ulcer has been present for a long time.

Wise has described a so-called "syringe test" to determine the exact position of the tip of the tube. By means of a glass syringe, the plunger of which slips back and forth easily, 30 c.c. of air are injected into the balloon. Wise states that if the balloon is in the small intestine, the plunger of the syringe will be pushed backward by the peristaltic action of the intestine, but in our experience this test has proved misleading. Apparently, if the tip is just at the pylorus, the stomach musculature may contract down upon the balloon and cause the plunger to be pushed backward, thus misleading the attendant into thinking that the tip is in the small intestine, and as the inflated balloon is still in the stomach, the tip of the tube will not pass into the small intestine and valuable time is lost.

X-ray studies constitute the only sure method of definitely and quickly determining the position of the tube. Time is an extremely important factor in the treatment of paralytic ileus and intestinal obstruction, and the longer the time consumed in decompressing the intestine, the poorer the prognosis.

After the tip of the tube is known to have passed the pylorus, the balloon is inflated with 30 c.c. to 40 c.c. of air, and constant suction is applied to the aspirating side of the tube to allow continuous removal of the intestinal contents.

We should like to warn against using more than 50 c.c. of air in the balloon. In one of our earlier cases, 70 c.c. of air was used; the patient died, of other causes (cardiac and respiratory), with the tube in place, and at autopsy it was found that the balloon had stopped in the distal ileum, three feet above the cecal junction. At this point the intestine was tightly stretched over the distended balloon; vascular changes, venous stasis, thrombosis and early necrosis had begun to take place. Since then, we have generally used 40 c.c. of air (never more than 50 c.c.) to inflate the balloon.

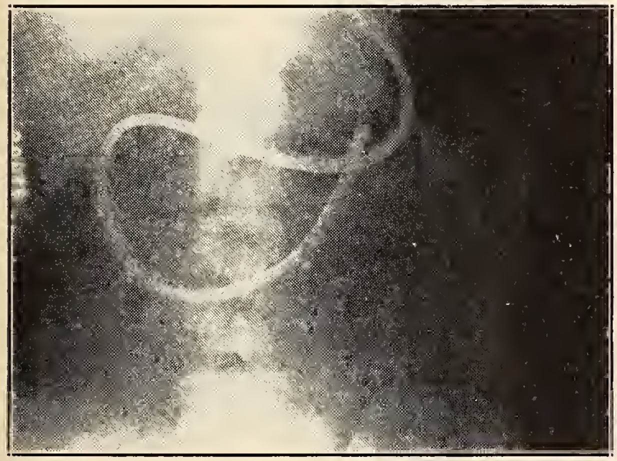


Fig. 2. Photograph showing Miller-Abbott tube in jejunum. The tip is at the ligament of Treitz. The balloon is inflated but cannot be seen in the photograph.

X-ray studies should be made frequently. We usually have films made every 12 hours, using a portable machine. By this method, kinks in the tube can be actually visualized and can be relieved by manipulating the tube, either inserting it farther or pulling it out a bit.

As the tube progresses through the intestine, the position of the patient should be changed frequently because of the variable positions of the distended loops of intestine.

Manual manipulation of a distended abdomen by gentle pressure in various areas sometimes increases the drainage from the tube, the amount of which varies a great deal and is influenced by several factors: (1) The degree of distention; (2) the speed with which the tube traverses the intestine; and (3) the amount of fluid taken by mouth. At times as much as 3,000 to 4,000 c.c. may be aspirated in 24 hours, and at other times as little as 50 to 75 c.c. may be aspirated in the same period of time. When only small amounts of fluid are obtained, the tube is probably blocked and should be irrigated and manipulated frequently.

When the tip of the tube has reached the small intestine, it is introduced three or four inches farther every two hours. The progress of the tube through the intestine depends primarily on the restoration of peristalsis of the intestine; as each loop is decompressed, the balloon will proceed forward into the next dilated loop. This process is repeated down the entire tract, and the speed at which the balloon

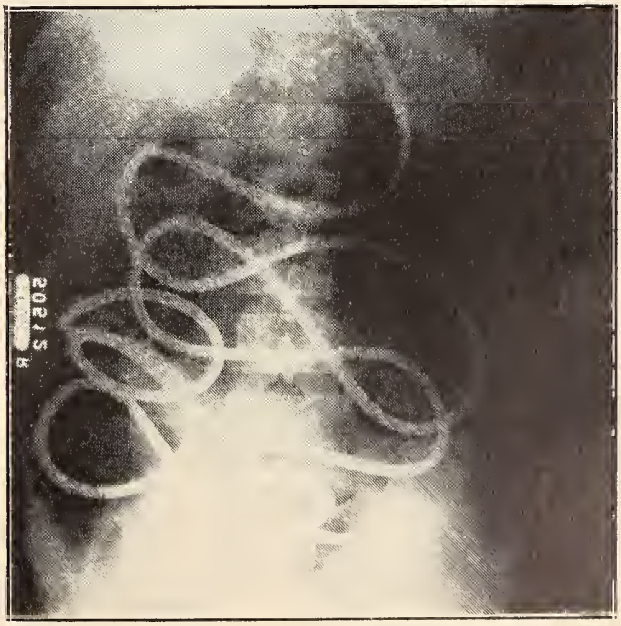


Fig. 3. Photograph showing Miller-Abbott tube in jejunum and terminal ileum. The balloon has been deflated and the patient at this stage was taking liquids and food by mouth.

passes forward varies with the amount and duration of the distention. If the ileus and obstruction are relieved by the intubation, the tip should continue steadily toward the terminal ileum. If, however, the progress of the tube is arrested at any point for more than 12 hours, the surgeon should immediately suspect that the point of arrest may be the site of obstruction. Such a diagnosis can be verified by the injection of a small amount of thin barium into the tube (20 to 30 c.c.); this amount of barium, we believe, cannot do any harm, even in the presence of complete obstruction. If, after 12 to 24 hours, the tip of the tube still remains in the same place and the barium shows no tendency to progress down the intestine, the obstruction is probably mechanical and operative intervention is indicated. It is in such cases that the Miller-Abbott tube can be of tremendous advantage. Not only does it help to locate the site of obstruction, but, by decompressing the intestine, it makes the patient a better operative risk.

As the tube continues to progress, it is more likely to become blocked because the contents of the intestine are of a thicker consistency. Therefore, the tube should be irrigated frequently with water, 30 to 40 c.c. Attendants should be warned not to use any larger quantities because of the small diameter of the intestine and the thinness of the friable intestinal wall.

The tube should remain in the intestine until the patient is completely relieved, which time is indefinite. The patient can take non-residue liquids after deflation of the balloon. The tube is withdrawn at the rate of one foot per hour.

Noer has recommended feeding the patient adequately by mouth as soon as the tip of the tube passes the ligament of Treitz. We believe, however, that feeding patients too early will throw a greater burden on an already diseased intestinal tract; therefore, we usually wait until the distention and the degree of toxemia have been relieved, believing this is a better indication as to when to begin feeding. In the meantime, we depend upon the parenteral use of glucose and other solutions for corrective chemistry.

CONTRAINDICATIONS

Use of the Miller-Abbott tube is not indicated in strangulated hernia, volvulus, intussusception, mesenteric thrombosis, or any obstruction in the large bowel. Despite the fact that the tube frequently traverses the entire intestinal tract, it cannot be depended upon to reach the large bowel quickly enough to be of value.

DISADVANTAGES OF OTHER METHODS

1. Duodenal tube drains only upper reaches of the intestine.
2. Drugs and enemas have proved unsatisfactory. Only prostigmin offers some results.
3. Spinal anesthesia is unsatisfactory.
4. Jejunostomy and ileostomy drain only one loop.

RESULTS

Up to the present time, 30 cases of various types have been treated at the Touro Infirmary by means of the Miller-Abbott tube. These can be classified under the following general types:

1. Postoperative paralytic ileus following operation for mechanical intestinal obstruction (intestinal intubation used as an adjunct to operation)—seven cases;
2. Postoperative ileus following other types of abdominal and genito-urinary operations—13 cases;
3. Intestinal obstruction treated by intubation without operation—five cases;
4. Paralytic ileus due to generalized peritonitis not following an operative procedure—two cases;
5. Paralytic ileus associated with ulcerative colitis—one case;
6. Diverticulitis of the duodenum—one case.
7. Other conditions—one case (also in two unusual complications in cases previously classified).

We have used the Miller-Abbott tube as a therapeutic measure in two conditions in which its use has not yet been reported from other sources. In one case of duodenitis, the tip of the Miller-Abbott tube was placed in the proximal jejunum, and jejunal feeding was carried out through the tube, thereby partially defunctionalizing the duodenum and at the same time nourishing the patient through the gastrointestinal tract. In a severe case of gangrenous ulcerative colitis, the tip of the tube was placed in the terminal ileum, in order to defunctionalize the colon (similar to an ileostomy) and relieve the ileus. Furthermore, it was possible to inject drugs such as prontosil through the tube into the terminal ileum and colon so as to attack directly the infected intestinal mucosa. In a case of intestinal parasitic infestation (strongyloides) associated with a severe paralytic ileus following a perforated appendix, the anthelminthic drug (gentian violet solution) was injected through the Miller-Abbott tube after the ileus had been relieved. We believe that our experience in these last two cases opens up a new method of intraintestinal medication.

It is interesting to study the success and in some instances the failure of the Miller-Abbott tube in the various types of cases. In 27 of these 30 patients (90 per cent), the tube was used successfully, either to relieve the ileus or for other purposes:

1. Twenty-three patients in whom a severe ileus was completely or partially relieved (Groups 1, 2, 3, 4).

2. Three patients in whom an incomplete mechanical obstruction was relieved (Group 3); and one patient with duodenitis (Group 6) in whom successful jejunal feeding and partial defunctionalization of the duodenum was carried out for a time.

We believe that it is pertinent to review in detail three cases in which intestinal intubation with the Miller-Abbott tube failed:

Two of these were patients with complete mechanical obstruction in whom unsuccessful attempts were made to substitute intestinal intubation for operation and in whom operation was later necessary. We believe that in these instances of complete mechanical obstruction the Miller-Abbott tube should be used only as an adjunct to operation, rather than as a substitute for operation, except when the patient is moribund and operation would surely prove fatal. The third unsuccessful attempt occurred in a patient with paralytic ileus in whom the tip of the tube could not be forced past the pylorus, probably because of an old pyloric deformity due to a duodenal ulcer. Although intubation was unsuccessful in these patients, the tube furnished efficient gastric suction.

CONCLUSIONS

1. Intestinal intubation by means of the Miller-Abbott tube is an important advance in the treatment of paralytic ileus.

2. In the treatment of intestinal obstruction this tube is an important adjunct to operation. It should not be substituted for operation in the treatment of complete obstruction and should be used with caution in incomplete obstruction.

3. The technical difficulties involved in intestinal intubation are many and varied and deserve close attention.

4. The tube has been put to new uses in the treatment of duodenitis and colitis, and its use as a new method of introducing intraintestinal medication is suggested.

5. Thirty cases of various types are reviewed and the value of the Miller-Abbott tube is demonstrated clinically.

BIBLIOGRAPHY

Abbott, W. O., and Miller, T. G.: Intubation studies of human small intestine. A technique for collection of pure intestinal secretion and for study of intestinal absorption, J. A. M. A., 106:16, 1936.

Abbott, W. O., and Pendergrass, E. P.: Intestinal studies of human small intestine. The motor effects of single clinical doses of morphine sulphate in normal subjects, Am. J. Roentgenol., 35:289, 1936.

Beecher, H. K.: The measured effect of laparotomy on the respiration, J. Clin. Invest., 12:639, 1933.

Brams, W. A., Katz, L. N., and Köhn, L.: The effect of abdominal distention and release on the blood pressures in the arteries and veins, Am. J. Physiol., 104:120, 1936.

Burget, G. E., et al.; The closed intestinal loop. I. Relation of intraloop (jejunum) pressure to the clinical condition of the animal, Arch. Surg., 19:478, 1930.

Burget, G. E., et al.: The closed intestinal loop. II. Observations on dogs with jejunal and ileal loops and chemical analyses of the blood, Arch. Int. Med., 47:593, 1931.

Churchill, E. D., and McNeil, D.: Reduction in vital capacity following operation, Surg. Gynec. & Obst., 44:483, 1927.

Dragstedt, C. A.: Some pharmacological considerations of intestinal obstruction, Illinois M. J., 74:313, 1938.

Dragstedt, C. A., Lang, V. F., and Millet, R. F.: The relative effects of distention on different portions of the intestine, Arch. Surg., 18:2257, 1929.

Dmitrenko, L. F.: Circulatory responses to disturbances of the stomach, Am. J. Physiol., 68:280, 1924.

Herrin, R. C., and Meek, W. J.: Distention as factor in intestinal obstruction, Arch. Int. Med., 51:152, 1933.

Johnston, C. G.: Decompression in the treatment of intestinal obstruction, Surg. Gynec. & Obst., 70:365, 1940.

Miller, T. G., and Karr, W. G.: Intubation studies of human small intestines. The influences of variations in reaction and motility of stomach contents on reaction and the motility of intestinal contents, Am. J. Roentgenol., 35:30, 1936.

Miller, T. G., Abbott, W. O., and Karr, W. G.: Intubation studies of human small intestine. VIII. Miscellaneous observations. Am. J. Digest. Dis. and Nutrition, 3:647, 1936.

Miller, T. G., and Abbott, W. O.: Intestinal intubation: a practical technique, Am. J. M. Sci., 187:595, 1934.

Muller, G. P., Overholt, R. H., and Pendergrass, E. P.: Postoperative pulmonary hypoventilation, Arch. Surg., 19:1322, 1929.

Paine, J. R., Carlson, H. A., and Wangensteen, O. H.: The postoperative control of distention, nausea and vomiting; a clinical study with reference to the employment of narcotics, cathartics, and nasal catheter suction-siphonage, J. A. M. A., 100:1910, 1933.

Raine, F., and Perry, M. C.: Intestinal obstruction; experimental studies on toxicity, intra-intestinal pressure and chloride therapy, Arch. Surg., 19:478, 1929.

Thorington, J. M., and Schmidt, C. F.: A study of urinary output and blood-pressure changes resulting in experimental ascites, Am. J. M. Sci., 165:880, 1923.

Van Zwalenburg, C.: Strangulation resulting from distention of hollow viscera, Ann. Surg., 46:780, 1907.

Wangensteen, O. H.: Therapeutic considerations in the management of acute intestinal obstruction; technic of enterostomy and a further account of decompression by the employment of suction siphonage by nasal catheter, Arch. Surg., 26:933, 1933.

Wangensteen, O. H.: Early diagnosis of acute intestinal obstruction with comments on pathology and treatment, with report of successful decompression of three cases of mechanical bowel obstruction by nasal catheter suction siphonage, West. J. Surg., 40:1, 1932.

Wangensteen, O. H., and Paine, J. R.: Nasal catheter suction siphonage; its uses and technic of its employment, Minnesota Med., 16:96, 1933.

Wise, R. A.: The Miller-Abbott double lumen tube in intestinal obstruction (preliminary report), Am. J. Surg., 41:412, 1938.

DISCUSSION

Dr. J. D. Rives (New Orleans): It happens that several of the cases reported by Dr. Kaplan and Dr. Michel were my own and several others were handled under my observation so that I have had a relatively large personal experience with this subject. I would like to say in this connection that too much credit cannot be given to Dr. Michel for his persistence and ingenuity in passing the tube under difficult conditions.

It is well for us to keep in mind what the possibilities of the tube are and what its dangers are, in order that we may get the maximum of use with the minimum of risk. The Miller-Abbott tube is a very safe and valuable instrument when used with discretion and very dangerous when used without it. All that it can accomplish is the same thing that an enterostomy accomplishes with the advantage that the level of decompression is the lowest part of the bowel above obstruction and also that it avoids the fistula that so often follows enterostomy. All other dangers of enterostomy occur also in the use of the tube.

There is quite a great deal of difficulty in the passage of the tube. I believe that if its introduction cannot be observed by x-ray, its use results in a waste of time and is a definite danger. Then too if we cannot get, in effect, the services of a special nurse and special intern, in many instances failure will result. Lacking the services of an intelligent intern or resident who understands the procedure and is willing to give the time that is necessary for passage, it is dangerous to use it and again a waste of valuable time.

Dr. Kaplan has gone into the indications for the procedure and I can add nothing but can emphasize some points. First, paralytic ileus is probably a misnomer. The condition that is usually so designated is actually due largely to the fact that the bowel is so distended that its muscles are ineffective in their effort to contract. Peristalsis is usually resumed as soon as the bowel is decompressed. In most instances what we call paralytic ileus is really the result of a series of kinks commonly called hose kinks, which have the effect of a complete mechanical obstruction. If the tube can be successfully passed in such cases, it has great value and no danger. Recent postoperative obstructions, such as those that occur after pelvic operations, are due to fibrinous adhesions and there is no danger of strangulation of the involved bowel. Given time, these adhesions will free themselves. In such cases the tube works admirably. After successful intubation loose stools are usually passed in six or eight hours. If this does not occur, we should suspect obstruction due to some other cause, which, if permitted to go further, will probably result in rupture of the bowel. We must always insist that if the establishment of intestinal function is not produced in a moderate length of time after the tube is passed to the level of the obstruction, decompression must be due to some cause that it is dangerous to leave uncorrected. The greatest usefulness of the tube, I think, is in postoperative treatment. It is also valuable preoperatively in intestinal obstruction when the abdomen is greatly distended. There is great danger in any conservative measure used preoperatively that results in delay of an operation which is inevitable. The mortality of intestinal obstruction still depends more on the length of time between the occurrence of the obstruction and the time of its release than on all methods of treatment combined.

Dr. Mims Gage (New Orleans): This paper presents to the Society a method that has not permeated the medical profession as it should have, in regard to the treatment of paralytic ileus. I think this is probably the greatest advance in years. Forty years ago surgeons did everything that it was humanly possible to do to produce an ileus in operative cases and then after that to cure it. Both failed, then they tried all known drugs to simulate it. I took part in that. I did not take part in the first, but I took part with drugs. Then came the period when every effort was made on the part of the surgeon at time of operation or preoperatively, based on physiologic principles, to prevent it. We have, to a great extent, prevented the postoperative ileus; however, we do have a number of cases where it is impossible or occurs in spite of efforts. We do, as already stated, have it in peritonitis at times.

We have used the tube rather extensively on our service. I stayed up all one night to see what took place in a patient with ileus. It is remarkable to me to see the passage of the tube unloose segments; the burst of gas bubbles in the suction bottle and after the passage of more tube see another burst of gas bubble go through the suction bottle. The important thing is that you must pass the tube rather slowly. What the tube does is to convolute the small bowel. If rapidly passed it comes through the rectum and has to pass the rectum. The intestine convolutes itself. The tube should be passed slowly, allowing time for the duct to convolute itself, regain its tone and stay like that.

This is a great contribution. I have enjoyed the paper and discussion and think the tube should be used in paralytic ileus and in many other different ways. In mechanical obstruction, operation should be done immediately or as soon as possible and then put the tube in.

Dr. John R. Schenken (New Orleans): I have not had much experience with the tube in action but I have had some after it was used in four cases. I just want to say this, not in criticism of the Miller-Abbott tube but as a suggestion or emphasis on the points already brought out in regard to the dangers in use of the tube: The first case in which it was used resulted in an esophagitis which we interpreted as being the result of the tube. Two cases were postoperative perforated peptic ulcers. In each of these cases, the tube was passed incorrectly and the tube curbed up on itself in the stomach. The tubes were used to relieve postoperative ileus. Both of the films of the abdomen were similar to those shown by Dr. Kaplan. The fourth case was a case of acute suppurative appendicitis; the distention was not relieved because of peritonitis being present and the peritonitis of course continued. An ulcerative esophagitis also resulted in this case. Therefore out of the four cases that we saw at postmortem, two had ulcerative esophagitis, and in two the Miller-Abbott tube had not passed the duodenum.

Dr. Marshall L. Michel (New Orleans): What Dr. Schenken has mentioned emphasizes again the fact that the correct use of this tube necessitates the close attention of the surgeon and the resident staff. Because of the metal tip on the end of the tube, insertion should be performed gently and slowly. It must not be overlooked that in most cases, for which the Miller-Abbott tube is used, we are dealing with a diseased, and therefore very friable, intestinal tract.

As far as the tube passing completely through the intestine, I have had this happen in one instance. This was a case of ulcerative colitis, with marked hyperperistalsis, in which case the Miller-Abbott tube was being used to defunctionalize the lower intestine. The tip of the tube passed out of the rectum for approximately six inches.

I would like to emphasize again the mistakes that can be made in the use of this method of intestinal intubation. It is by no means considered to be a substitute for operation in cases of complete mechanical obstruction. It is merely an adjunct to operation. If a diagnosis of obstruction is made, we still believe that operation should be performed immediately, if the patient's condition will permit. Many mistakes have already been made by trying to treat cases of complete obstruction with the tube alone.

In cases of paralytic ileus, the Miller-Abbott tube is of undisputed value and gives us an entirely new out-look. It has definite advantages over an enterostomy. The Miller-Abbott tube will decompress a series of distended loops of small bowel, whereas an enterostomy will decompress only a single loop. Furthermore, an operative procedure in a very sick patient usually can be avoided.

In closing, I would like again to warn against attempts to use the Miller-Abbott tube as a substitute for operation in the treatment of mechanical obstruction of the intestinal tract. The indications for operation in intestinal obstruction remain almost the same as before the advent of intestinal intubation, and the Miller-Abbott tube should be considered only as an adjunct to operation.

Dr. I. W. Kaplan (in closing): I am sure that the tube, if left down any length of time, must produce some irritation in the esophagus. In a number of cases, we have left it down as long as three weeks at a time, and have gotten no bad end results.

FALLACIES IN THE TREATMENT OF HEART DISEASE*

PAUL D. WHITE, M. D.
BOSTON, MASS.

FALLACIES IN CARDIAC TREATMENT

Cardiac treatment, like all other treatment of disease, has had its ups and downs, its days of polypharmacy and its days of therapeutic nihilism, its enthusiasts and its skeptics. Actually as in nearly everything else in human endeavor the best path is the conservative one, in the middle of the road. We should not decry the existence of the extremists, for without their enthusiasm we might make very little advance, but we must use great judgment and cool and critical appraisal of new methods of therapy and of new drugs before we adopt them ourselves routinely in these days of high pressure salesmanship of everything under the sun. A drug may be of value to some people, or in modest dosage, but it should not therefore be advertised as essential to all mankind in unlimited amounts and at fancy prices; it then may become the basis for a sort of racket like the vitamin tonics and the barbiturate sedatives.

---

*Presented at the Fifth Annual Meeting of The New Orleans Graduate Medical Assembly, March 4, 1941.

There are two important bits of advice I would give at once that apply not only to any kind of heart trouble but to many medical and indeed even surgical diseases. They are as follows: First, when things are not going well in the face of much drug or other therapy, try a rest day or two or three without any medicines at all (except in the case of essential rations like insulin)—every now and then the result is little short of miraculous in arousing a spark of life, of appetite, or of morale which had been dampened by the very drugs which perhaps at first or on occasion may actually be life saving. Life saving measures may prove too heroic for every day life and may eventually result in severe depression or worse. The other bit of advice is a corollary. Do not use too many vigorous agents at one time. Each drug or measure may be very valuable and several together may prove vitally helpful, but every now and then in combination too rapidly administered they may do harm. I have seen patients in poor health, but not really emergency cases, brought from their homes to a hospital where they succumbed in a few days to the vigorous administration of drugs or measures which individually or in moderate dosage are highly effective and desirable but which in too concentrated combination or too high dosage upset the apple cart. Again it is well to follow the middle of the road, even in emergency treatment.

Now let me take up various cardiovascular symptoms and signs with reference particularly to therapeutic measures that are commonly carried out but which would be well avoided.

SYMPTOMS

Palpitation: There are all kinds of causes for palpitation, most of which are not cardiac in origin; that is, heart disease itself is not the cause of palpitation in the large majority of cases. Therefore, try first to find out the cause of the palpitation—it may be easily discovered and eliminated, for example, fatigue, nervous strain, overeating, coffee, tobacco, alcohol, thyrotoxicosis. Do not give drugs right away, even if you can not find the cause. In the absence of serious causes, and even in their presence, reassurance so far as this symptom is concerned is in order. For palpitation alone, strong measures like morphine and digitalis are to be avoided; the former may be habit forming and the latter may only increase the uncomfortable heart action, as it has done experimentally in my own case, unless auricular fibrillation or auricular flutter is present. What I have just said applies to simple tachycardia and bradycardia, extrasystoles and almost all cases of paroxysmal tachycardia. Reassurance, correction or eradication of an obvious remediable cause, and in some cases sedatives or quinidine are in order, not morphine, bed rest, or digitalis. Even auricular fibrillation or flutter may be so fleeting that it needs little treatment or occasion for apprehension. For frequent recurrence, rations of quinidine sulphate three or four times a day are usually far better than digitalis. Moreover a person should in no way be considered a cardiac invalid simply because he may have occasional paroxysms of tachycardia or even of auricular fibrillation. He may actually have fewer such attacks if he lives a normal life, avoiding nervous strain and excessive tobacco, but not avoiding moderate exercise (including golf). I would like to interpolate here an observation of importance about the heart rate in auricular fibrillation. It is sometimes difficult or impossible, by any known method of treatment (digitalis, quinidine, sedatives, absolute rest, or other measures) to control the ventricular rate in the presence of fibrillation. Reasons for this are several, and one of these should be suspected in dealing with such a case. They include: (1) Infection, often obscure as in the case of a mild or moderately active rheumatic infection; (2) pulmonary embolism or infarction; (3) infarction elsewhere as in heart or kidney; (4) thyrotoxicosis, often not very clear-cut, and perhaps (5) a highly emotional state. Be patient and treat so far as is possible these other factors and do not force digitalis with the possibility of poisoning.

Now as to shortness of breath: Do not give digitalis to a person simply because he is short of breath. A considerable number of patients have been referred to me for dyspnea who were getting digitalis but were no better for it. I have generally found in such cases states of chronic bronchitis or asthma with emphysema that were responsible, or nervousness with sighing respiration, or plain unfitness with obesity. The clue to most of these cases at once is the finding of a normal heart size. A good rule is that dyspnea is not due to heart failure or obstruction, as from mitral stenosis, if the heart size is normal. Also remember that acute asthma and indeed even pulmonary edema, unilateral or bilateral, may occur reflexly as from a chest tap without heart disease or failure. But, of course, bronchitis may complicate heart disease, and vice versa.

Next, precordial pain or heartache is in the majority of instances not due to heart disease. It needs careful appraisal as to cause but in most cases it is relatively unimportant, of nervous origin largely and to be treated in part at least by reassurance. Do not put people with heartache to bed or give them morphine unless you are very sure they need it. A nervous woman of 35 or 40 with precordial pain is very unlikely to be suffering from coronary thrombosis.

And even substernal oppression is often not angina pectoris but rather due to spasm of stomach or esophagus, to be treated by belladonna and diet rather than by rest and nitroglycerine. Also in such cases omit tobacco and nerve strain; large doses of reassurance are in order.

Moreover, syncope and faintness and vertigo are sometimes wrongly ascribed to the heart and treated as such. They are most likely to be due to vasomotor instability or in the case of vertigo to Ménière's syndrome, which I have seen in a few instances so severe that it has simulated somewhat, and been wrongly treated as, coronary thrombosis. A little care quickly distinguishes these two conditions, however.

A final word as to symptoms. When all these various symptoms mentioned above are gathered together in one person, one can almost at once diagnose that bothersome condition called neurocirculatory asthenia or the soldier's heart, which will rapidly come to the fore again in the present emergency. It is a difficult thing to treat and hence far better to avoid, in high degree at least, in our enlistment of the new army. As to its treatment I can not do better than to quote from that classic of Da Costa's written 70 years ago on the "Irritable Heart of Soldiers," advice that is quite appropriate at the present day.

> "The treatment is never a short one; and the question arises, would it not be better for the government at once to discharge these heart cases? I think not. The very worst ones, those which after some months of treatment show no decided improvement, had better be discharged; so had those which happen to the very young, or in soldiers in whom some decided complicating ailment exists, which is likely to prevent the cardiac malady from entirely leaving; though even some of these can be kept as fit for guard duty, for service in hospitals, or in convalescent camps. But all other cases should be kept for treatment; and then either, if fit, sent back to their regiments, or passed into such organizations as the Veteran Reserve battalions during the late war, which were intended to do provost duty, to serve in fortified places, in fact, to do everything except active service in the field. And from these organizations again, should the war prove a protracted one, the cases that have thoroughly recovered may be sent to rejoin their former regiments. To act otherwise, to discharge the large number of cases of functional disorder of the heart, which must exist in every army during war, would, I believe, deplete it as much as an engagement, and have on many a soldier, seeing the ease with which a discharge can be obtained, a demoralizing effect. As for the time required before the disposition of a

case is made, this depends much on judgment in individual instances, and while, until I understood the malady, I retained a number of patients a long period in the hospital, later in the war a short time sufficed to make the proper disposition of them."

. . . . .

"In bringing this inquiry to an end, I may be permitted to point out what I believe to be its chief interest and value. To the medical officer it may be of service as investigating a form of cardiac disorder which every severe or protracted campaign is sure to develop. And from a military point of view, further, it enforces the lessons, how important it is not to send back soldiers just convalescent from fevers or other acute maladies, too soon to active work; it suggests that their equipments be such as will not unnecessarily constrict, and thus retard or prevent recovery; that recruits, especially very young ones, be as far as practicable exercised and trained in marches and accustomed to fatigue before they are called upon to undergo the wear and tear of actual warfare; and it exhibits some of the dangers incident to the rapid and incessant manoeuvring of troops. True, on a movement executed on the double-quick may depend the issue of a battle, a forced march may determine the fate of a nation; and the time can never come when purely physical considerations can forbid, either one or the other, or dictate how often they may be ordered. But every commander should be made aware that in so using his men he is rendering some unfit for further duty, impairing others, and thus be led to count the cost of the frequent use of such active movements as carefully as he would the holding of a particular part of a line or the assault on another."

SIGNS

Cyanosis is commonly due to pulmonary disease rather than heart disease or when it is the result of heart disease it comes most often from a congenital defect or from pulmonary congestion and local systemic stasis in mitral stenosis without myocardial failure and is not benefited by digitalis unless the heart rate is high in auricular fibrillation or unless the liver is enlarged and the systemic venous pressure raised, which is not the rule. Nor does oxygen help appreciably, for the fault is a mechanical one. Such cyanosis can be endured with little harm for years. It may cause undue apprehension.

About two years ago a little girl with argyria was referred to me as a case of congenital heart disease of the cyanotic type. I was able to return her to her distant home with a much improved prognosis, advised her to stop using silver solution nasal drops, and released her from exercise restrictions; in fact in this case, effort improved greatly her appearance, in contrast to the accentuation of the cyanosis in the cases of congenital morbus caeruleus.

Cardiac enlargement *per se* requires no treatment unless we wish to give small or moderate daily rations of digitalis in older persons with large hearts under constant strain with the idea of retarding the appearance of congestive failure.

Murmurs *per se* are not to be treated with digitalis or by rest, although factors back of them like luetic aortitis may need therapy. Once upon a time the discovery of a murmur meant for the doctor the need of starting digitalis. To be sure many hearts with murmurs fail and then need foxglove and rest, but many do not.

Fast pulses do not require digitalis, unless they result from auricular fibrillation, or flutter, and yet the drug is often given with little avail and even with toxic results in thyrotoxicosis, infections, infarction, and excessive nervousness, including neurocirculatory asthenia.

A slow pulse rate, even in the forties, requires no treatment *per se*, even if heart block is present; only if the block is unstable with pulse dropping low enough to threaten the patient with syncope (a very rare occurrence) is treatment needed. Otherwise a slow pulse is a decided asset.

The same may be said of low blood pressure. Almost invariably, even when the systolic pressure is constantly at or near 100, such hypotension is an asset. Of course, if the pressure has dropped abruptly from 200 to 100 we have another situation, but even so, such low pressure is not to be treated if it is uncomplicated by symptoms or other signs.

Hypertension is to be treated by sensible measures of rest, reduction of weight, and correction of obvious causative factors, but we must not deceive ourselves into thinking that we have yet discovered any therapeutic panacea. We must continue to grope and explore, hoping that there may arise eventually something as good as insulin in diabetes.

Edema of the legs, even of both legs, is in the minority of cases due to heart failure. It is most commonly the result of local circulatory fault, with or without varicose veins, phlebitis, or marked obesity. And yet I have repeatedly found patients with normal sized hearts and bilateral leg edema receiving digitalis without benefit, even in my own hospital.

The same statement is true to a degree about rales at the lung bases. Most congestion of the lungs, best seen by x-rays, is not accompanied by rales, and most rales, even at the bases, are due to other than heart failure, although the factors responsible, namely, atelectasis, pulmonary infarction (commonly at both bases), or infection, frequently complicate heart disease or failure (as in acute coronary thrombosis or serious mitral stenosis).

Now, a word or two about digitalis itself. It is an invaluable drug but it is over used at the present day. Twenty years ago, when I began my private practice, I could still frequently make "ten-strikes" by putting patients on digitalis; now that rarely happens. I still sometimes make ten-strikes, however, by doing the reverse, namely, taking patients off digitalis. Not only are at least twice as many patients receiving digitalis as need it, but twice as much as necessary is given to many of those who do need it. This is partly the result of the uncritical following of the old idea of rapid and maximal digitalization, but also due to the stepup in the strength of many of the commercial preparations on the market some 30 to 50 per cent in the past few years to suit the new international standard, as outlined by the last U. S. Pharmacopeia. A few doctors have reduced the dosages of foxglove they have been prescribing but most have not, being more or less unaware of the rather insidious change that has taken place. Hence one of the most common experiences I have lately had is to encounter cases, even in the best hospitals, of moderately severe digitalis intoxication.

In brief then, give digitalis only to those persons with clear evidence of heart failure or in whom such failure threatens or is in doubt, and to cases of auricular fibrillation or flutter that do not clear quickly on their own or by the use of quinidine, and not to the great majority of cardiac patients. And when you give it, reduce the dosages you once gave (a few years ago or even now if you have not changed) to about two-thirds or three-quarters strength. Also look out for toxic digitalis effects from vigorous mercurial diuresis in edematous cases.

Before concluding, I have two more bits of advice which may help to correct other fallacies in cardiac treatment. First, do not give too much morphine to cardiac patients even with coronary thrombosis or acute pulmonary edema. Give enough to dull the pain or dyspnea but avoid overdosage, for morphine and its allies, pantopon and dilaudid, often cause depressing or nauseating effects which can be very disagreeable and indeed definitely harmful. Second, do not rush to try every new remedy suggested in the treatment of coronary disease with insufficiency. None of them is of great value, drugs or surgery, or x-radiation. The old standbys of rest and the nitrites are still the best, although in a few instances aminophyllin and nerve injections do seem to help. Radical measures like total thyroidectomy and implantation of new blood supply have not proved their worth, nor has radiation of the adrenal glands.

CONCLUSION

Remember that in heart disease, as well as elsewhere, and particularly in rheumatic and coronary heart disease, there is a natural tendency of the heart to recover, no matter what we do (provided we use common sense). Dr. Harry Levine and I have just completed a short paper for the New England Journal of Medicine entitled "What Natural Recovery and Sensible Measures Can Do for a Cardiac Patient." A good deal in many cases, I can assure you! Not that we doctors may now be dispensed with, but let us not be distracted from this fundamental truth by the high pressure salesmanship of the present day.

THE TREATMENT OF COMPOUND FRACTURES*

PAUL C. COLONNA, M. D.
OKLAHOMA CITY

There are few conditions in the field of surgery that require greater surgical judgment and experience than the treatment of compound fractures and their complications. Each case to a certain extent is a law unto itself. At this time, however, with the increasing interest being manifest in war wounds and in the value of chemotherapy and radiation, it is felt that a review of the principles in the treatment of compound fractures may be of interest.

It has been said that the whole era of modern surgery has developed through the compound fracture. In 1864 Joseph Lister of Glasgow, being struck by the remarkable effect of carbolic acid in lessening the sewage odor in the town of Carlyle, decided to try using this acid in treating his compound fractures. In 1867 he reported upon 11 cases of compound fracture, stating that amputation of the limb had been necessary in only one case and death had occurred in only one other. This was a decided improvement in the results being obtained at that time, but progress advanced very slowly and even in 1877 the mortality rate in compound fractures was estimated generally at 40 per cent. During the World War the Orr method of treating compound fractures improved greatly the results previously obtained. Today we hope that in careful hands results may still show improvement.

The importance of proper emergency treatment at the site of the accident is becoming increasingly recognized, while the necessity of maintaining length and position with fixed traction in transportation must be stressed for it still is rather generally ignored. In a consideration of any series of compound fractures, it is a striking fact that the great majority of accidents producing these injuries are preventable. Therefore, hand in hand with any consideration of compound fractures should go the education of the public with regard to safety of life and limb. Undoubtedly progress has been made in this direction in most of the industrial plants of the country, but with our American mechanization and the national careless disregard for personal safety, educational propaganda must be expanded.

GENERAL CONSIDERATIONS

Let us follow a patient from his arrival in the Emergency Room and his admission to the hospital, reviewing the routine treatment he should receive: He should arrive at the Emergency Room with the limb in traction and properly splinted. If shock is present, transfusion of whole blood, plasma or serum is administered from the "blood bank" as soon as possible after his blood has been taken and typed. The initial treatment consists of caring for the shock if present. While it is desirable to have a blood pressure of 80 or over before doing immediate surgery, this rule cannot always be followed and if a patient with a compound fracture uncomplicated by other injuries is suffering from shock, then it may be desirable to treat the wound while continuing to treat the shock at the operating table. Very large quantities of saline or dextrose are not desirable according to Blaylock when the capillaries are abnormally permeable and may actually result in harm. It must be remembered with the severe type of injury a sudden immediate mortality may be unavoidable.

Tetanus gas gangrene antitoxin is given as a prophylactic dose. In cases of sensitization to horse serum, this must be determined and the patient desensitized. External heat is applied and if the bleeding is severe, hemostats applied or a pressure bandage placed about the limb. The sterile dressing applied over the wound in the Emergency Room is not disturbed until the patient is treated in the operating room. First consideration is given the patient's general condition, but as soon as possible x-rays should be taken.

Every effort is made to have the essential steps become a routine procedure, for in compound fractures wasted time is the best medium for aerobic and anaerobic organisms to develop. Undoubtedly our results would be far better if adequate care of the patient and wound toilet could be completed within six hours of the time of the accident. Therefore, the importance of emergency treatment all along the line in the handling of this type of case cannot be over-stressed. Before the patient is removed from the Emergency Room the splints should again be checked regarding the degree of immobilization present. The development of gas and tetanus infection must always be kept in mind. The use of prophylactic radiation of 100 R units on three successive days during which the use of sulfanilamide is omitted has produced in Jackson's series a striking decrease of gas and tetanus infection.

---

*Read at the Fifth Annual Meeting of the New Orleans Graduate Medical Assembly, March 5, 1941.

LOCAL CARE OF THE WOUND

After having given the patient emergency first aid treatment as outlined to combat the general condition of shock and taken the necessary x-rays, the patient is ready for admission to the hospital. Often he can be taken directly from the Emergency Room to the Operating Room where the previously applied sterile dressing is removed, but the traction and splintage continued. The surrounding skin is shaved and gently but thoroughly cleansed with soap, water and ether. At this time if the opening is button hole in size, it is enlarged and whenever there is a gaping lacerated wound, a sharp scalpel is used to cut away the rim of the wound edge. After this a careful debridement of the devitalized skin, fascia, muscle and completely detached bone fragments follow in the order named. This removal of devitalized tissue is of the greatest importance but must be gently, meticulously and rapidly done, saving as far as possible any partially attached bone fragments. No antiseptic is used in the wound for it is believed that any fluid strong enough to kill bacteria is powerful enough to harm the tissue cells. The wound must be adequately exposed and a thorough mechanical cleansing should be accomplished with normal saline. We prefer a long period of wound flushing with a soft rubber tube connected to an elevated enema can which permits a certain amount of velocity to the water, permitting the hematoma pockets and extravasated blood collections to be thoroughly opened and drained. Attention must be directed to having the saline flow from the depths of the wound outward and not burrow along the fascial sheaths and become a factor in spreading infection. Care must be taken to tie off any bleeding vessels but the policy is to use as few ligatures as possible and to control the small bleeders by allowing the hemostats to remain *in situ* several minutes before removing them. All surgery on the soft tissues must be done in the gentlest manner consistent with thorough debridement and if a definite plan is followed much valuable time can be saved the patient.

After the soft tissues have been adequately treated, the broken bones are placed in the best possible alignment and if the bones, by being notched can be locked in position, this method is recommended. With the oblique fracture, however, it may be necessary to use other methods of fixation. The application of Kirschner wires or Steinman pins above and below the fracture site which are then incorporated in the plaster may accomplish adequate fixation. Occasionally if the compound fracture can be treated early, we are justified in using Moore pins or plate fixation with the types of fractures that are difficult to hold by any other method. At times we have used a Carrell screw which is inserted obliquely through the line of fracture. Vitalium is always the metal of choice. The rigid immobilization that internal fixation assures, is an important factor in controlling the local infection. If any internal fixation is necessary, every effort is made to keep the fingers carefully out of the wound, using lion-tooth bone forceps to hold the fragments. The essential principle in the treatment of compound fractures is to obtain early rigid fixation for a number of weeks following surgery, preferring fixation obtained by external means but realizing that occasionally one can obtain this only by an adequate degree of local fixation. In the final disposition of the wound we are faced with the question of closing the wound tightly, loosely, or leaving it open. This must be dependent upon the time interval that has elapsed between the accident and the operation, as well as the degree of wound laceration present.

Many favorable reports that are appearing in the literature, as well as my own personal experience concerning the local implantation of sulfanilamide or sulfathiazole in these wounds, make me believe that many of these cases can be treated safely by closure at a much later period of time than was formerly believed possible. Key has pointed out that while the local implantation of sulfanilamide will produce a concentration of about 800 mg. per cent in the contaminated area for a 36 hour period, the systemic administration should not safely be beyond a 10-15 per cent blood concentration. If, however, there is any doubt in the mind of the operator that such a technic is dangerous for the particular case, I feel sutures should be placed about the wound edges, the wound loosely packed with vaseline dressing, and at a later date secondary closure instituted. Occasionally because of the subcutaneous location of the bone, such as the crest of the tibia, it may be considered wise to approximate the skin directly over it and then make adequate openings laterally down to the site of the fracture; not however employing any rubber drains. These slits should be several inches long in order to permit adequate drainage. Sulfanilamide and its derivatives must be regarded as adjuvants in the treatment of compound fractures and I am employing 1 to 4 grams of the powder dusted into the wound in practically every case of compound fracture. I feel that while chemotherapy will inhibit infection in these wounds, adequate preliminary surgery is the prime requisite and should never be inadequately done. After the eight to ten hour period, I usually leave the wound open, placing secondary sutures and lightly packing with vaseline gauze followed by immobilization. The surgeon should employ the splint or fixation method which in his hands most adequately fulfills the requirements of immobilization. The fragments can be transfixed above and below the site of the fracture with pins or wires which are incorporated into the plaster casing, or if the reduction of the fracture can be satisfactorily maintained, a well-fitting plaster casing only may be applied. In some instances suspension in traction may be preferred but it must be added that the constant attention to detail that is absolutely necessary with this method is not personally popular. Whatever the method employed, the dressing should never be packed tightly into the wound and in my experience the Orr method of vaseline pack and plaster casing has been most satisfactorily used for the late cases, dressing the wound four to six weeks later as a rule through a window cut in the plaster. We cannot be "messing around" compound fractures from day to day. I do not use any type of drainage material in the wound other than the vaseline, and occasionally I have packed the wound with vaseline ointment alone. In the present war the Orr method is being used extensively, and recently the results of 10,000 cases have been reported with this method by the Spanish surgeon, Trueta. The average compound wound is treated by primary closure if operated upon within eight to ten hours using sulfanilamide in the wound. The blood concentration should be checked every forty-eight hours whenever sulfanilamide is used, keeping it above 5 mg. and not over 10 per cent per 100 c. c. A firm compression dressing over the part before the plaster is applied is very useful as it lessens subsequent edema and collection of fluid in the tissues.

On returning the patient to the ward, suspension of the part must be made. Sand bags are placed on either side of the limb to prevent it from rolling from side to side thereby lessening some of the postoperative muscle spasm.

Close observation of all compound fractures is absolutely necessary for there are a few complications which must be constantly borne in mind. In the first place, union is ordinarily much slower than in the simple fracture so that every effort must be made to avoid distraction of the fragments at the time of plaster application. If subsequent x-rays show that distraction is present, it may be due to distraction at the time of plaster application or subsequent absorption of the bone ends. We are now watching for any distraction and correcting it by removing a small circular cuff of plaster at the level of the fracture and then rewrapping the limb without disturbing the underlying dressing. Our desire after treating the wound as above described is to avoid frequent dressings and to continue the efficient immobilization until there is evidence of bony union. While anatomic restoration is desirable, it is not always necessary. The ultimate aim should be to restore normal function to the part with the least delay possible.

In those cases in which there is evidence of gas or tetanus infection at the time of admission, I feel that liberal incisions into the soft parts with the excision of all dead muscle and leaving the wound wide open should be done as soon as possible. No form of internal metal fixation in these cases should be used at the site of the fracture.

If gas infection is present the clinical findings of pain, swelling, elevation of pulse rate, discoloration of the tissues and crepitus in the tissues, with the bacteriologic findings makes the diagnosis self-evident. Two ampules of polyvalent gas gangrene antitoxin intravenously and one ampule intramuscularly, both of which are repeated on the second and third days, are of definite benefit and I would rather give too much than too little. On the question of implanting sulfanilamide crystals in gas infected wounds I feel that the careful experimental work of Caldwell is important. He found that sulfanilamide crystals implanted in such wounds after debridement seldom control or prevent the development of gas gangrene. This same author used zinc-peroxide paste in the debrided wounds of experimental animals and states that in most instances its use prevented the development of gas gangrene.

In 1933 Kelly first advocated radiation of gas infection and collected 81 cases of compound fractures that had developed the *Clostridium-welchii.* Of this series, 78 per cent were alive and well and three dead, giving a mortality of 3.7 per cent. These are excellent results, and it is to be noted that in none of these cases was an amputation necessary. His many reports, as well as Jackson's, on the use of sulfanilamide and radiation together offer convincing proof that there is a definite contraindication to their simultaneous use. Bosworth, in 1938, reported seven patients treated without serum or amputation, or any known specific medication except x-ray therapy, all of whom recovered. X-ray therapy probably has no effect upon the progress of fulminating type of gas gangrene but appears to bring about some localization of the process when given early and if the patient has survived 48 hours or longer. While I have had no experience with the zinc-peroxide paste placed in the wound, in the presence of a gas infection I believe that wide local incision of the wound, heavy doses of antitoxin intravenously and intramuscularly, with heavy doses of radiation and possibly zinc-peroxide paste in the open wound, offer the best opportunity for a successful outcome.

Another anaerobe to be watched for is the tetanus bacillus. The usual symptoms are early trismus followed by spasticity of the neck and back muscles and later generalized muscular contractions. Mortality with this complication is high, from 75 to 90 per cent in acute cases and 40 to 60 per cent in the milder forms, and it must be kept in mind that tetanus appearing a few days after the injury offers the gravest prognosis. The wound should be widely opened and irrigated with hydrogen and peroxide or oxygen. The patient is kept quiet by sedation, placed in a dark room and serum therapy instituted. Twenty-five thousand units of tetanus antitoxin intraspinally and 50,000 units intravenously or intramuscularly may be used and each of these doses is repeated on each of the following two days. Radiation after the condition has developed has been reported to be successful. In this connection it must be mentioned that whenever re-operation upon a previously infected wound becomes necessary, even though it has been six months since the original injury, it is considered wise to give a prophylactic dose of antitetanic serum of 1,500 units and a similar dose at the end of the week postoperative. I should like to report the following very interesting case which brought home very forcibly to me the dangers of ignoring this therapy.

CASE REPORT

E. K., male, aged 28, in July, 1940, received a gunshot wound in the left thigh, sustaining a fracture of the left femur. Local drainage followed, and he was admitted to the University Hospital in September, 1940. On admission there was marked over-riding of the shaft and many shot were noticed in the tissues. The wound presented a marked purulent discharge. A thorough cleaning of the wound was done approximately three months after the gunshot wound, the fragments aligned and temporarily immobilized with a vitalium plate. The wound was packed with vaseline and the Orr method of immobilization followed. On the ninth postoperative day the patient began to complain of tightness of the jaws and difficulty in swallowing. This muscle pain spread to the arms and upper abdomen and patient developed a stiff neck. The patient was found to be very sensitive for ordinary A. T. S. and gas antitoxin so that the bovine type had to be used. He was given 20,000 units of A. T. S. intramuscularly and the following two days received 50,000 intravenously, combined with heavy sedation and glucose and saline infusions. Then 50,000 units of A. T. S. were given every other day for the next three days and local application of oxygen was constantly injected into the tissues from the oxygen tank. Patient improved and eleven days after the onset of tetanus he appeared to be progressing satisfactorily, having received during the tetanus a total of 330,000 bovine A. T. S. intravenously, a number of transfusions and glucose and saline infusions. At present the x-ray shows a marked amount of callous about the site of the fracture which has been immobilized with the plate.

BIBLIOGRAPHY

Kelly, J. S.: X-ray as aid in treatment of gas gangrene, Radiology, 20:296, 1933.

Ghormley, Ralph K.: Gas gangrene and gas infections, J. Bone & Joint Surg., 17:907, 1935.

Bohlman, H. R.: Gas gangrene treated with sulfanilamide, J. A. M. A., 109:254, 1937.

Meleney, F. L., and Johnson, Balbina: The prophylactic and active treatment of surgical infections with zinc peroxide, Surg. Gynec. & Obst., 65:387, 1937.

Bosworth, D. M.: Gas bacillus infection and the complications of fractures, J. Bone & Joint Surg., 20:985, 1938.

Sewell, Robert L.: Conservative surgery with radiation in gas gangrene infections, Surgery, 6:221, 1939.

Jensen, N. K., Johnsrud, L. W., and Nelson, M. C.: The local implantation of sulfanilamide in compound fractures, Surgery, 6:1, 1939.

Herman, Otto J.: Compound fracture therapy at the Boston City Hospital, Arch. Surg., 40:853, 1940.

Key, Albert J., and Burford, Thos. H.: The local implantation of sulfanilamide in compound fractures, South. M. J., 33:449, 1940.

Caldwell, G. H.: Treatment of gas gangrene, J. Bone & Joint Surg., 23:81, 1941.

THE NON-BLOODY VAGINAL DISCHARGES OF PREGNANCY*

WILLIAM F. GUERRIERO, M. D.†
AND
RUPERT E. ARNELL, M. D.†
NEW ORLEANS

Before undertaking a discussion of abnormal vaginal discharges, it is wise to consider briefly the secretions or discharges which are normally found in the vaginal and vulvar regions. Sweat and sebaceous material are found on the skin and mucosa covering the labia majora because these structures contain sudoriferous and sebaceous glands. Deposits of sebaceous material are found between the mucosal folds of the labia and beneath the prepuce because the labia minora are rich in sebaceous glands. A scanty mucoid secretion is delivered into the vaginal vestibule from Bartholin's glands.

The vaginal mucosa is devoid of glands and therefore has no secretory function. The cervix, however, is rich in compound racemose glands, which normally secrete a clear, alkaline mucus. The vagina is normally lubricated with this mucus, and the vaginal secretion, in normal cases, is composed of mucus, together with desquamated epithelial débris and a few leukocytes. In the non-pregnant state this secretion is normally acid, with a pH of 4-4.5.

---

*Read at a meeting of the Louisiana State Obstetrical and Gynecological Society, New Orleans, Louisiana, April 20, 1940.

†From the Department of Obstetrics and Gynecology of the School of Medicine of Louisiana State University and the L. S. U. Obstetical Service in Charity Hospital of Louisiana at New Orleans.

In the pregnant state, because of the increased blood supply and glandular proliferation of the parts, there is an increased amount of vaginal secretion. During early pregnancy the secretion is acid, and in late pregnancy, because of the rich glycogen supply of the vaginal cells, it is highly acid, with a pH of 3-4.

In the normal pregnancy, therefore, it is usual to find an increase in the vaginal discharge, together with an increased acidity in the later months. These facts, however, should not obscure another fact, that all vaginal discharges during pregnancy are by no means normal. The physician is so accustomed to concentrating on the hemorrhagic discharges of this period that he is inclined to overlook the so-called "non-bloody" discharges, which are very frequent and which may be actually or potentially harmful as well as very annoying to the patient. Such discharges, furthermore, may be just as resistant to treatment as is the leukorrhea which, in ordinary gynecologic practice, frequently taxes the ingenuity of the clinician.

The chief causes of non-bloody vaginal discharges in pregnancy do not differ from those of similar discharges in the non-pregnant woman. They may be roughly grouped as follows:

1. Infections and infestations due to gonorrhea, trichomoniasis, mycoses, non-specific infections, chancroid, syphilis, lymphogranuloma and granuloma inguinale.

2. Non-infectious states, including congestion, hyper-secretion and lack of cleanliness.

3. Erosions of the cervix and endocervicitis.

GENERAL DATA

The matter of non-bloody vaginal discharges was thoroughly studied in the Louisiana State University obstetric clinics of the Charity Hospital of Louisiana at New Orleans over a four-month period, during which 433 patients were examined, 107 of whom were white and 326 of whom were colored. It was surprising to observe that of this number 317 patients, 44 white and 273 colored, a total of 73.2 per cent, exhibited some discharge.* It was equally striking to observe that only 107 patients, 20 white and 87 colored, a total of 32.6 per cent, considered the discharge severe enough or annoying enough to warrant mentioning it. Many of them, in fact, denied, when questioned, that they had any discharge and it was found only when pelvic examination was made.

ETIOLOGY OF VULVO-VAGINAL DISCHARGE IN PREGNANCY

	White		Colored		Total	
	Cases	%	Cases	%	Cases	%
Trichomonas	19	5.9	107	33.7	126	39.6
Mycosis	7	2.3	51	16	58	18.3
Gonorrhea	3	.9	15	4.7	18	5.6
Non-specific	15	4.7	97	30.9	112	35.6
Lymphogranuloma	0	0	3	.9	3	.9
Totals	44	13.8	273	86.2	317	100

As usually happens, the number of complaints was exactly in proportion to the social strata and hygienic habits of the patients. The figures are perhaps too small to be significant to obstetricians who are not familiar with the racial peculiarities of the colored patients at Charity Hospital, but to those who are, it would be expected that roughly one-half of the white patients should complain of even minor discharges, while roughly two-thirds of the colored patients should ignore all discharges, including, in many instances, discharges which were profuse and foul.

Whether the higher percentage of vaginal discharges in the colored obstetric patients can be attributed to their customary lack of hygiene and the ordinarily high rate of gonorrheal infection in this race, or to other causes, is a matter of speculation. It is a well-known fact, however, that the negro always exhibits a high percentage of infections of the genital tract due to improper sex hygiene, as well as a high percentage of non-gonorrheal infectious diseases.

TRICHOMONIASIS

Although the clinical signs of *Trichomonas vaginalis* vaginitis vary, certain symptoms are more or less pathognomonic of the infestation. The discharge may be profuse or scanty. In most cases it is creamy, grayish-yellow, thin, bubbly, and offensive. The vulvar and vaginal mucosae are often diffusely reddened, and in severe cases there is evidence of excoriation. The vagina may show a profusion of hemorrhagic spots, giving it the so-called "strawberry" appearance, and the cervix is often eroded.

---

*Statistics are corrected (Chi square) by courtery of B. G. Efron, M. D.

Some patients have symptoms and others have none. As a rule, however, there is a complaint of dyspareunia, dysuria, and dull, bilateral pain in the lower abdomen. Burning and itching of the external genitalia are common.

The definite diagnosis is made by examination of the fresh discharge for the motile, flagellated organisms. This is best done by preparing a hanging drop slide with a drop of discharge, to which is added a drop of normal saline. Examination of this preparation under a low power lens establishes the diagnosis, and it is unfortunate that this simple, accurate diagnostic procedure is often neglected.

Trichomonas vaginalis vaginitis was present in 126 cases in this series (19 white and 107 colored), although symptoms were present in only 34 cases, 26.8 per cent of the total number (12 white and 22 colored). The diagnosis was confirmed by the hanging drop method in all cases. An associated gonorrheal infection was present in three instances, all in negro patients.

The many methods of treatment advocated for this condition are nothing short of bewildering. Most clinicians prefer to use some form of drying powder and to direct their treatment toward the eradication of the trichomonas and restoration of the normal bacterial flora. Effective results are often secured by changing the type of therapy. The condition is obstinate and recurrences are common with all forms of therapy, this being particularly true when the subject is pregnant. Examination of the male prostate and urethra should be routine whenever possible.

Although we have used several arsenical preparations in the treatment of *Trichomonas vaginalis* vaginitis in this group of pregnant women, we used only two methods, as follows:

1. Beta lactose (1 gm., in #12 capsules) was inserted into the vagina each night, and low pressure douches of lactic acid (U. S. P., oz. 2 per two quarts of water) were taken each morning. Treatment was continued for approximately three weeks, after which the douches were continued for four to six weeks three times a week. Thirty patients treated by this method were relieved of their symptoms, and in 22 the trichomonas was completely eradicated.
2. Sodium perborate was used by the method advocated by E. C. Smith.[1] The vagina, if the secretion was alkaline, was first treated with lactic acid douches, and then was dried by swabbing with cotton pledgets. Sodium perborate (1 gm., in #12 capsules) was instilled into the vagina each morning, and a douche containing 15 gm. of sodium perborate to one quart of lukewarm water was taken at bedtime. Treatment was continued for 10 days after the first hanging drop examination was negative. The method was followed by relief of symptoms in four cases, and appears to be as effective as any other method.

MONILIA

Because of the increased glycogen content of the vaginal mucosa and the increased acidity of the vaginal canal, mycoses in this region are considerably more common in pregnancy than in the nonpregnant state. Since the incidence of this infection has frequently been shown to be associated with the hygienic habits of the patient, it was not surprising to find that 51 of the 58 patients in whom this type of infection was present were colored women. Thirty-six of this group, 62.1 per cent (six white, 30 colored), presented symptoms.

Patients with yeast infestations frequently complain bitterly of pain, dyspareunia, itching and excoriation of the affected parts. The discharge is flaky, tenacious, greenish-yellow and membranous. There is no odor and it is frequently discovered only when the labia are bathed. On examination the vulva is seen to be reddened and edematous, and the vaginal wall exhibits large, irregular scattered white patches, which are easily wiped off, and under which are seen areas of hyperemia.

Diagnosis is made by the finding of the fungus in fresh smears stained with Gram's stain or Lugol's solution. The mycelium is a long, branched, fiber-like structure and the conidium is about the size of a pus cell. For confirmatory evidence, as well as in cases in which the yeast cannot be demonstrated by smear, culture on Sabouraud's medium is necessary. Typical colonies can usually be recognized in 24 hours. Six of the 58 cases of mycoses in this series were diagnosed by culture.

The treatment in all cases in this series consisted of painting the vagina with 5 per cent aqueous gentian violet solution, after it had been carefully dried. For a week thereafter the patient, once daily, instilled 5 c. c. of the same solution into the vaginal canal with a syringe. At the end of the week the vagina was again thoroughly painted with gentian violet, and for the next two weeks the patient took daily douches of Lugol's solution (oz. 2, half strength) in two quarts of water.

Thirty patients in this group were relieved of their symptoms by a single course of treatment by this plan, and required no further therapy. A second course of treatment was necessary to relieve the remaining six patients.

GONORRHEA

The gonococcus has long been given credit for being the most common cause of vaginal discharges, due chiefly to the natural affinity of the organism for Skene's and Bartholin's glands, the urethra and the many racemose glands of the cervix. The low incidence of gonorrhea in this series is therefore very surprising, particularly in view of the large number of colored pregnancies which it includes. The discharge was due to gonorrhea in only 18 of the 317 cases (three white, 15 colored).

Fifteen of the 18 cases were diagnosed by culture. To rule out gonorrhea cultural methods are necessary, as other gram-negative organisms of similar morphology are found in vaginal smears. Furthermore, we have found on the L. S. U. services that the positive diagnosis of gonorrhea can be made four times more frequently by culture than by smear. The organism is cultured on testicular hydrocele agar, using the method advocated by Pitts.[2]

Therapy in all cases consisted of hospitalizing the patient and administering sulfanilamide, in doses of 80 gr. daily for two days, 60 gr. daily for four days, and 40 gr. daily for six to eight days. Sulfathiazole is now used with less toxic effects and even quicker results. Dosage is the same. Careful checks for signs of toxicity were made daily. Sixteen of the 18 patients treated by this method had negative smears at the end of a single course of treatment, and in the other two cases good results were secured, after a further course of treatment with sulfapyridine.

Temporizing measures cannot be employed in gonorrhea. Even when it is discovered late in pregnancy or at the actual onset of labor, treatment is immediately instituted in the manner described. In no case in this series did the fetus seem to be adversely affected by the type of therapy employed. In such cases all forms of examination are dispensed with during labor, and every effort is made to deliver the patient with a minimum of trauma. Treatment is continued during the puerperium.

NON-SPECIFIC DISCHARGES

Sixty per cent of the patients admitted to our obstetric clinics have some form of cervical discharge, the cause of which is frequently due to some one of the conditions already mentioned. In a very large number, however, there is no related specific organism present. Such conditions must not be ignored. Erosions which before pregnancy are small, during pregnancy may reach the size of fungating growths. In one such case the condition presented the clinical picture of carcinoma, although biopsies were negative and considerable regression ensued after delivery. In such cases it is generally agreed that biopsy must be taken immediately, even though carcinoma associated with pregnancy is very unusual.

Cervicitis in the early months of pregnancy is treated by 25 per cent silver nitrate applications to the eroded areas and the instillation of sulfanilamide powder to the lesion. We have had no ill effects from treating these patients and have been surprised at the results obtained in preventing larger erosions from developing. Naturally, cervicitis associated with the specfiic causes of leukorrhea are treated by eradicating the causal agent.

In 112 cases in this series some form of cervicitis was found to be the chief cause of the discharge, although, as has been mentioned, nearly all of the other cases presented some degree of cervicitis in association with other causes of the vaginal discharge. Treatment was undertaken during pregnancy in all cases with gratifying results and without any harmful complications.

COMMENT

It will be observed, from what has been said, that the treatment of specific vaginal discharges during pregnancy does not differ from the treatment of similar conditions in non-pregnant subjects. All manipulations are, naturally, undertaken with the greatest care and gentleness. Low pressure douches and vaginal instillations even to the eighth month have been used without any untoward ill effects. It is more rational to have a clean, healthy vaginal canal when labor begins than to ignore the presence of discharges which keep the canal in an unhealthy state. This alone is sufficient but the relief afforded the patient makes it even more imperative that discharges even in late pregnancy be treated and not ignored.

It is interesting to observe that in the series reported herewith the great majority of patients were seen in the obstetric clinic prior to the sixth month of pregnancy. This is a significant commentary upon the increasing tendency of both negro and white patients to report early to the obstetric clinic which means, in turn, that prenatal care can be instituted while it is still most effective.

In respect to the subject under discussion, the matter of vaginal discharges in pregnancy, the fact that the majority of patients were seen before the sixth month made possible the treatment of specific discharges with entire safety and with corresponding good results. This is an important consideration. The habit of ascribing discharges which occur during pregnancy to the pregnancy itself is not justified. They should not be considered as a mere accompaniment of pregnancy until all other causes have been investigated and eliminated. Treatment is often, necessarily, palliative rather than curative, but at that, it plays its special part in eliminating the puerperal morbidity and even the proportion of puerperal sepsis which are now believed to have their origins in an unhealthy vaginal canal.

It must not be forgotten, too, that the fetus may also suffer from the presence of abnormal vaginal discharges. Infants delivered through genital tracts infected with yeast vaginitis frequently suffer from thrush and it is scarcely necessary to mention the even more serious ophthalmia which is the sequel of delivery through a birth canal infected with gonorrhea.

SUMMARY

1. A series of 317 cases with non-bloody vaginal discharge in pregnancy is presented.

2. Etiology, incidence, therapy and results are discussed.

3. The necessity of investigating all vaginal discharges in pregnancy is stressed with emphasis on therapy even in late pregnancy.

REFERENCES

1. Smith, E. C.: The treatment of *Trichomonas vaginalis* vaginitis with sodium perborate. A preliminary report on 14 cases, New Orleans M. & S. J., 92: 510, 1940.

2. Pitts, A. C.: The culture method in the diagnosis of gonorrhea, Venereal Disease Information, 21: 61, 1940.

STUDIES WITH ANTIGENS

X. THE STATISTICAL METHODS FOR THE ANALYSIS OF COMPARATIVE SKIN REACTIONS

M. R. PABST, M. A.
C. H. BOATNER, Ph. D.†
AND
B. G. EFRON, M. D.††
NEW ORLEANS

A method of analyzing comparative skin reactions by means of the Chi-square statistic was recently reported by us.[1] Since then we have used a more precise method of estimating probability associated with a given value of Chi-square, and have employed an alternate method for analyzing comparative skin reactions.

Berkson[2] and Hotelling[3] expressed the opinion that equal size of reactions is an irrelevant factor in testing the hypothesis, that no significant difference results from comparative tests made with identical extracts. Because the number of equal sized reactions in the "expected" class is the same as in the observed class, it follows that there is only one degree of freedom instead of two in the table of computation. Hence, in using the table of Chi-square to compute the probability associated with a given value, "n" is designated as "l". This is more easily seen when the value of Chi-square is computed by the direct method rather than by the Brandt-Snedecor formula which was in our recent paper.[1]

Applying the direct method to the data in Table 1 of our recent report,[1] the computation is as follows:

	Equal Sized Reactions	Radial Reactions Larger	Ulnar Reactions Larger	Total
Observed	326	89	86	501
Expected	326	87.5	87.5	501

$$\text{Chi-square} = 0 + \frac{(1.5)^2}{87.5} + \frac{(1.5)^2}{87.5} = 0.0514$$

$$\left(\frac{(\text{Observed-Expected})^2}{\text{Expected}}\right)$$

n = 1
P = .90—.80
(.82)

The direct computation of the value of Chi-square for the data in Table 4 of this same report is as follows:

	Equal Sized Reactions	Sol. Double Conc. Reactions Larger	Sol. Double Conc. Reactions Smaller	Total
Observed	192	180	31	403
Expected	192	105.5	105.5	403

$$\text{Chi-square} = 0 + \frac{(74.5)^2}{105.5} + \frac{(74.5)^2}{105.5} = 105.218$$

n = 1
P = less than .01

The conclusions reached in that report[1] remain the same even when the more precise estimation of probability is used.

Application of the direct method to the data presented in other studies in which skin reactions were analyzed by the former method shows that the more precise estimation of probability does not alter the results or the conclusions published in these papers.[4,5] Practically, the more precise method is of importance when the question of the significance of a given value is doubtful.

Berkson and Hotelling also stated that an alternate method for analyzing comparative skin reactions is applicable when there are only two independent classes of reactions, in which case the difference between the two independent observations can be tested according to the binomial distribution. The estimation of probability for the data in Table 1 of our recent report[1] can be computed as follows:

Expected probability (p) = .5000
Standard deviation = .0378
Observed probability $\frac{89}{175} = .5086$
Deviation from expectation .5086 — .5000 = .0086
$\frac{\text{Deviation from expectation}}{\text{Standard deviation}} \quad \frac{.0086}{.0378} = .2275$
P = .82

The estimation of probability for the data in Table 4 of that report[1] is as follows:

Expected probability (p) = .5000
Standard deviation = .0344
Observed probability $\frac{180}{211} = .8531$

---

†The Chemistry Department, Newcomb College, Tulane University.

††The Allergy Division, Touro Infirmary, New Orleans, La.

Deviation from expectation $.8531 - .5000 = .3531$

$$\frac{\text{Deviation from expectation}}{\text{Standard deviation}} \quad \frac{.3531}{.0344} = 10.2645$$

$P =$ less than .01

This simpler statistic has the advantage of being a more direct method of estimating probability than the Chi-square statistic. For analyzing comparative skin reactions, both of the methods employed yield similar results and conclusions.

SUMMARY

1. A more precise method of estimating probability associated with a given value of Chi-square is presented for the analysis of comparative skin reactions.

2. Application of this more precise method of estimating probability does not affect the published results and conclusions of our studies in which the first method of estimation was used.

3. When there are only two independent classes of reactions, the probability can be calculated directly from the binomial distribution. The results obtained with this method are similar to those obtained with the Chi-square statistic.

REFERENCES

1. Pabst, M. R., Boatner, C. H., and Efron, B. G.: Studies with antigens. V. The analysis of comparative skin reactions by means of the chi-square statistic. New Orleans M. & S. J., 93:142, 1940.

2. Berkson, J.: Personal Communication, 1940.

3. Hotelling, H.: Personal Communication, 1940.

4. Boatner, C. H., Efron, B. G., and Dorfman, R. I.: Studies with antigens. III. The purification of house dust extracts, J. Allergy (in press).

5. Boatner, C. H., and Efron, B. G.: Studies with antigens. IV. Purification of extracts of grass pollens, Proc. Soc. Exper. Biol. & Med., 45:460, 1940.

BAGASSCOSIS: A FUNGUS DISEASE OF THE LUNG*

A CASE REPORT

S. CHAILLÉ JAMISON, M. D.
AND
JOE HOPKINS, M. D.
NEW ORLEANS

The following case is reported as an exceptional instance of pulmonary involvement apparently due to the inhalation of bagasse dust. Several similar cases have occurred in the hospital, but on the whole comparatively little attention has been paid to the condition.

E. S., an unmarried 20 year old negro male laborer was admitted to the medical wards of Charity Hospital on June 11, 1940. He complained of fever and dyspnea and dated the onset of his illness to twelve days before admission when it began with malaise and weakness. Three days after the onset he had a slight chill, felt feverish and went to bed. Afternoon fever and night sweats occurred daily from that time. On the one occasion the temperature had been taken it was 103.2° F. Coughing began with onset of illness. The cough was productive. Clear white material was brought up; however blood tinged sputum had been noticed on several occasions. There was some retrosternal pain on coughing. Dyspnea occurred on slight exertion and following coughing. The only medication used was "666".

Past history revealed measles and mumps in childhood, gonorrhea in 1937, influenza in 1936, an undiagnosed fever in 1936 and frequent sore throat. Family history was irrelevant. The social history showed he had previously been a farm laborer but since May, 1939 he worked at the Celotex plant in Marrero. After February, 1940, his work was unloading bagasse. This was very dusty work and although a respirator mask was worn some dust seeped in and was inhaled.

Very few pertinent findings were noticed on physical examination. The blood pressure was 120/90, pulse 100, respiration 24 and temperature 99.4° F. He was a hyposthenic, well developed, well nourished male of apparently 24 years, ambulatory and did not appear acutely ill. The pharynx was slightly reddened and the tonsils hypertrophied. There was a slight lag of the left side of the chest on inspiration. Percussion was resonant over the lung area. Tactile fremitus showed no deviation from normal. Vocal resonance was somewhat coarsened over the lower posterior chest. Breath sounds at both lung bases posteriorly were coarsened with the findings more marked at the right base. On coughing a few scattered coarse rales were heard at the right lung base posteriorly. Dyspnea appeared on coughing. On rectal examination the prostate gland was slightly tender in the left upper portion.

Impression on admission was either tuberculosis or a dust disease of the lungs, and tonsillitis.

On admission the red blood cell count was 4,600,000, total white cell count 10,500 with a differential count of 76 per cent neutrophils, 10 per cent lymphocytes, 6 per cent monocytes and 8 per cent myelocytes. No malarial parasites were seen in repeated examinations of blood smears. The urine contained 1 to 4 pus cells per high power field on microscopic examination. Examination of prostatic secretion on two occasions showed 1 to 3 pus cells per high power microscopic field but no bacteria on staining. Examination of the sputum was negative for acid-fast organisms. Blood agglutination was negative for typhoid, paratyphoid, typhus, tularemia and undulant fever. Blood culture taken on June 20 was negative.

---

*Read before the Orleans Parish Medical Society, October 14, 1940.

An x-ray picture of the chest was made immediately on admission and interpreted by the roentgenologist to show bilateral bronchopneumonia. Sputum typing was negative for all types pneumococci. Sulfapyridine was started on June 12. The next day the sulfapyridine blood level was 5.2 mg. On June 15, the sulfapyridine was discontinued. A total dosage of 10 grams had been given with no effect on the fever and there were no pathologic physical findings demonstrable in the chest.

From time of admission the temperature was normal in the mornings and around 100° F. every evening with night sweats occurring every night. The day after discontinuing sulfapyridine the maximum temperature rose to 103.2° F. On June 17, it was 101.8° F. and on the next day 102.8° F. On this date inhalations, of carbon dioxide and oxygen were started in an attempt to expand the lungs fully. One 10 and three 5 minute periods of inhalation were given by mask during a period of three days. On June 19 the maximum temperature was 102.4° F., and on the next day 101° F. The maximum daily temperature continued to decrease about 0.2° F. daily until on June 24 he was afebrile and remained so until discharge. The night sweats persisted as long as the temperature was elevated. After discontinuing the sulfapyridine the only medication given was sedative cough medicine for the cough.

X-ray of the chest made on June 15 was reported to show miliary mottling throughout both lungs and the impression being miliary tuberculosis.

Intradermal tuberculin tests, with old tuberculin 1:10,000 on June 17, with 1:1,000 on June 24 and again with 1:10,000 on July 1 were all negative.

After a conference with the roentgenologist on June 18, it was suggested in view of his experience with several other cases from the same occupation, attempt be made to find a fungus in the sputum. If such could be found she believed this would prove to be not a case of miliary tuberculosis as the x-ray plates apparently showed, but a pneumonitis due to some fungus from the dust of bagasse and the lungs would be clear in a few months.

Examination of concentrate from a 24 hour total specimen of sputum collected on June 18 was negative for acid-fast bacilli but a culture grew a fungus. On June 24 a 48 hour sputum was collected and culture from the concentrate again grew the fungus.

X-ray examination of the chest on June 25 showed an increase in mottling throughout both lungs and the impression of the roentgenologist was "bagasscosis vs. miliary tuberculosis."

As the patient had no further fever and the cough disappeared he was discharged on July 10. The hospital stay had lasted 29 days and he had been afebrile during the last 15 days. He was instructed to return after six weeks for a period of observation.

He returned on August 5, with a history of remaining symptom-free during the interval. No positive points were found on physical examination. X-ray examination of the chest was reported to show a complete clearing of the "bronchopneumonic infiltration throughout both lungs." An electrocardiogram showed no evidence of myocardial disease. During the six days he was kept for observation he remained afebrile.

SUMMARY

An instance of involvement of the lung due to inhalation of bagasse dust, which should be called bagasscosis, is recorded. This is an extremely rare condition peculiar to regions where sugar cane is grown.

DISCUSSION

Dr. S. Chaillé Jamison (New Orleans): I can add very little to what Dr. Hopkins has said. The main thing of interest, I think, to all of us is that this case, shall we say, presents local color as it is probably due to the inhalation of bagasse dust. The diagnostic difficulty is the question of miliary tuberculosis, of course. If you examine these patients closely I think that will impress you. It is very similar to miliary tuberculosis. In the absence of physical findings, fever and so forth, the young negro mentioned certainly suggested that he might have miliary tuberculosis. These conditions of dust inhalation are, of course, more and more important. We see them at all times, referred largely by industrial plants.

You remember, of course, that there are diseases due to organic and inorganic dust. Those due to inorganic dust, such as occur in tobacco factories, cotton goods factories and so forth are, to all intents and purposes, apparently harmless. This should go, I think, in the class of organic dust. In nearly all such cases attempts have been made to isolate some organism, such as fungus, and put the blame on the fungus. What reaction these people have after inhalation of organic dust is usually because of an allergy to the particular material that they inhale and passes off in a very short time when they are free from contact. The organic dusts are, of course, much more serious. They range all the way from the commonest one, the inhalation of coal dust and soot, which is harmless, to the inhalation of silica which, as you know, is usually eventually fatal.

This boy impressed us, when first seen, as being quite sick and we were very much pleased when we were able, I think to everyone's satisfaction, to prove that he was suffering from the inhalation of dust and not miliary tuberculosis. There is nothing new about this, of course. Four or five cases had been worked up in the hospital before this case and I think Dr. Louis Monte reported several either here or before some other society. I think also that Dr. Fasting has done a very considerable amount of work on the bacteriology of this subject. He even went so far as to try to find out something, perhaps he succeeded, about the chemical composition of this partciular dust.

Dr. George F. C. Fasting (New Orleans): A few years ago we had three or four cases of similar nature in Charity Hospital. There were patients, on the service of Dr. Monte and his associates. X-ray and clinical findings were similar to this case. Quantities of sputum were sent to the laboratory and we did not find acid-fast bacilli. However, there was something that aroused interest, namely, masses that took acid-fast stain. In connection with the occupation of working with bagasse it was not difficult to put two and two together. I communicated with Dr. Charles Coates of L. S. U. regarding chemical aspects of bagasse. He confirmed some suspicions we had. It might be of interest to you to review this phase. Some of you know that there may be trouble in clarification and sugar crystalization by virtue of gummy substances and rosin which sugar cane produces. Rosin will harden and make its appearance in the bagasse dust. Such rosin is very much of the chemical nature of that part of tubercular bacillus taking acid stain. From sugar there is also obtained horny spicules that are not readily digested by the digestive juices which we possess. Sugar cane, in common with other grasses, has an interesting property of picking up colloidal silica and in soluble form it is exuded and deposited between the stalk and leaves as silica granules. We have then a compound not unlike quartz that workers are subjected to and inhale.

I am not sure that Dr. Monte has published the cases but at that time we thought it definitely an industrial hazard and thought it best to keep quiet about it.

EXTRAMEDULLARY ANEURYSM OF THE SPINAL CORD*

DEAN H. ECHOLS, M. D.†
AND
R. G. HOLCOMBE, JR., M. D.
NEW ORLEANS

CASE REPORT

This colored woman, aged 30, was brought to Charity Hospital in New Orleans by ambulance, July 8, 1940, complaining of pain in the back and paralysis of both legs. For the preceding two years she had experienced numerous attacks of high back pain. One month prior to admission, a few hours after lifting a heavy mattress, the patient felt a burning sensation from the epigastrium around the right side of the chest to the spine. Concomitantly, she experienced other pains shooting down the midline of the abdomen to the bladder and down the back to the sacrum. Associated with these pains was urinary frequency. A sedative enabled her to sleep. The next morning she noted weakness of the legs as well as a burning sensation when her dress rubbed against her left thigh.

She was treated by radiant heat to the spine for the next four weeks. During this time the lower extremities became progressively weaker. Three days before admission the legs became completely paralyzed and all sensation below the level of the xiphoid process was lost. Urinary and fecal incontinence appeared at that time.

Examination on the day of admission revealed complete anesthesia and motor paralysis below the level supplied by the sixth thoracic segment of the spinal cord. Roentgen films disclosed a spina bifida occulta of the twelfth dorsal vertebra. Spinal puncture yielded clear, yellow cerebrospinal fluid under a pressure of 200 mm. of water. The Queckenstedt test indicated a complete block. One-half cubic centimeter of lipiodol was injected into the subarachnoid space. Under the fluoroscope, when the head was lowered, the lipiodol was seen to gravitate to and stop at the level of the sixth dorsal vertebra. Cerebrospinal fluid examination indicated negative Kline and Kolmer tests, four plus globulin, and a cell count of 60. The blood Kline was negative.

A diagnosis of spinal cord tumor was made and a laminectomy performed on the following morning. The dural sac was opened. The cord was yellowish, somewhat swollen and rotated. On the right lateral aspect of the cord there was a plexus of vessels which emerged from a spherical black mass, partially buried within the substance of the cord. This mass measured one centimeter in diameter. The sac was opened, the clot was removed and the vessels entering the sac were coagulated.

Within five days after operation the patient began to note a return of sensation and within nine days a return of motor function. Two weeks postoperatively the indwelling catheter was discontinued. The patient has been receiving physiotherapy in the form of massage and passive as well as active exercises. Her improvement has been progressive. Now, four months after operation, it is noted that she can walk with assistance. Her bladder and bowel function normally and the sensory loss has practically disappeared.

---

*Presented before the Orleans Parish Medical Society, November 11, 1940.

CONCLUDING REMARKS

Aneurysm of the spinal cord is so rare as to be almost unknown. It is not even practical to consider this lesion in the differential diagnosis of causes of paraplegia. However, this patient does serve to demonstrate the danger of treating progressive paraplegia expectantly. Paralysis, in this case, would have been permanent had operation been delayed another twenty-four hours. Progressive weakness of the legs should be looked upon as a surgical problem until Queckenstedt's procedure demonstrates a patent subarachnoid space.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

King Rand, M. D., Ex officio
For one year: James K. Howles, M. D.
For two years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.
For three years: Lucien A. LeDoux, M. D.,
Vice-chairman
H. W. Kostmayer, M. D.
Secretary

EDITORIAL STAFF
John H. Musser, M. D.......................*Editor-in-Chief*
Willard R. Wirth, M. D.......................................*Editor*
Edwin L. Zander, M. D....................*Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D.....................*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the eighteenth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

CIVILIAN PRACTICE OF MEDICAL DEPARTMENT OFFICERS

Under the above caption the Adjutant General of the United States Army, Major General E. S. Adams, has sent out a notice throughout the United States that officers in the Medical Reserve Corps and Dental Reserve Corps are not to be permitted to carry on civilian practice when they are on active duty. The reasons for this order are obvious. In the first place the medical man assigned to a certain unit cannot give satisfactory service if he is harassed and worried by the exigencies of private practice. Furthermore, he, in theory at least, should have a sufficiently active service to require his full time. The other important reason likewise is plain. It would be decidedly unfair to the civilian doctor if the physician in the Medical Reserve Corps established a new office in the community in which he was located. This would make for unfair competition in many ways.

The Adjutant General has taken, we believe, a very fair point of view about this matter which has already been the cause of considerable discussion in medical circles and as has happened, when an army doctor, not in his home area, has engaged in private practice, it has caused much dissatisfaction amongst the civilian doctors.

o

THE HEALTH OF RURAL AND URBAN COMMUNITIES

The statement is frequently made that the people living in the country and small towns are longer lived than are city residents. This has been attributed to the greater speed of living in the city as contrasted with the country. As result of this rapid rate of living, as it is spoken of, city dwellers are assumed to develop arteriosclerosis and the degenerative changes of old age at a period in life much earlier than does the dweller in the country. Likewise it has been said frequently that contrariwise the general health of the city dweller is better than the country dweller because the former has easier access to expert medical advice and service than does the latter.

A recent communication by Short* is of interest in conjunction with the problem of whether or not differences in environment and conditions of occupation are important in occasioning sickness and bringing about changes in life expectancy. This author has compared the case history records of the Life Extension Institute of 1,310 rural and 10,665 urban individuals. He finds that there is remarkable similarity in physical standards between the two groups. The physical and laboratory findings showed practically no significant differences of any kind between the city dweller and his country cousin. It was discovered that the man who lives in the city used tobacco and alcohol to a much greater extent than does the man in the country. The author implies that greater nervous tension and irritability of the city dweller is compensated in part by smoking and drinking.

---

*Short, J. J.: Health differences between rural and urban populations, Proc. Life Extension Examiners, 3:6, 1941.

It is of interest that eye findings of the two groups were analogous. On the other hand, infected tonsils were more common in the country group than in the city. However, most remedial defects, such as hemorrhoids, hernia and so on, were statistically no more frequent in one group than in the other. It is of some moment that the average blood pressure in the two groups was practically identically the same.

In spite of the fact that most city occupations are more trying than those of the country, that the city dweller usually does not obtain a sufficient amount of exercise and that sleeping conditions are not as favorable in the city as in the country, city life is apparently not detrimental to the individual. Short concludes, incidentally, that medical care among the rural population is sufficiently adequate to prevent conditions of neglect.

———o———

NATIONAL DAYLIGHT SAVING

During the last World War a National Daylight Saving law was enacted by Congress which lasted until after the completion of this war. Although daylight saving had been tried in a good many of the cities and towns of the East prior to this time, the population who lived in a daylight saving regimen represented a relatively small group of people in the United States. However, the advantages of the daylight saving were so obvious that many states to this day still maintain this particular measure and at the present time upwards of one-third of the population of the United States has daylight saving in their communities. At this particular time when we are living under a national emergency, daylight saving is especially to be encouraged. Some of the advantages are a reduction in industrial accidents, a minimization of the strain of working under artificial light and giving to the workman a certain amount of rest and recreation time during daylight hours. This latter consideration is of particular importance to the health of the nation. Recreation and play in the open air and sunlight are certainly beneficial to most people. Daylight saving, permitting of an extra hour of daylight, will give to the worker, whether a brain worker or a manual laborer, the opportunity of relaxing and possibly playing after his full day's work, while the sun is still shining. It will give the man with a home an opportunity of attending to his kitchen or flower garden; it will reduce his consumption of gas and electricity.

Practically all of the principal cities in the country have daylight saving. Canada and Mexico are already on daylight saving. If the remainder of the country goes on daylight saving it will relieve a tremendous amount of confusion as to time and as to such mundane things as railroad schedules. This makes for inefficiency which, at this particular time, cannot be condoned. It is earnestly hoped that for the sake of the health of the country, the greater efficiency of the workers and for the purpose of avoiding confusion in time that the McLean Bill will be passed by Congress.

———o———

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

CHARITY HOSPITAL

New Orleans

At a meeting of the Charity Hospital Staff on February 18, the following case reports were presented, the first by Drs. R. H. Bayley and J. R. Schenken, and the second by Dr. F. A. Eigenbrod.

CASE No. 1

The patient, a 52 year old white male, was admitted to the hospital December 28, 1940, complaining of moderately severe retrosternal pain. He had been in apparently good health up until the morning of the day of admission, at which time he was stricken with a sudden onset of severe retrosternal pain and a feeling of generalized weakness. He was given an injection of morphine by his physician before being sent to the hospital. He was known to have hypertension for at least three years prior to the onset of the present illness. The systolic blood pressure was known to have been as high as 200 mm. of mercury on several occasions. There was a history of jaundice of two months' duration in 1938, supposedly due to chronic gallbladder disease. No operation was performed.

Physical examination showed a patient in moderate state of shock; temperature normal; blood pressure, right arm, 90/40; left arm, 140/90. Cardiac apex impulse was well localized and forceful, at a point just outside the left midclavicular line. Rhythm was regular. There was a soft systolic blow at the apex, and a to-and-fro murmur over the aortic area. There were no additional contributory findings.

Course in the Hospital: Patient ran a low grade fever (100°) throughout the hospitalization period. Repeated blood counts showed no leukocytosis. Repeated urinalyses were normal. Blood Wassermann for syphilis was negative. Initial electrocardiogram taken on admission showed marked left ventricular preponderance and high grade ischemia of the muscle tissue supplied by the right coronary artery. A second electrocardiogram taken five days later showed a slight decrease in the degree of local ischemia. The patient died suddenly on the twelfth day of hospitalization.

Antemortem Diagnosis: It was felt that the only etiologic factor that might explain the sudden development, during an attack of retrosternal pain, of high grade impairment of blood flow through the innominate and through the right coronary arteries and aortic insufficiency in a patient with hypertension, was dissecting aneurysm. Sudden death was attributed to rupture of the aneurysm into the pericardial sac.

The postmortem examination was performed by Dr. G. H. Hauser, Mercy Hospital, to whom we are indebted for the use of the material.

The significant postmortem findings were confined to the heart and systemic aorta. No details of the findings in other viscera will be described.

The pericardial cavity contained 150 c. c. of liquid pure blood and a large red antemortem blood clot which, when removed, left the pericardial surfaces smooth and glistening. These caused marked cardiac tamponade. A perforation of the intra-pericardial portion of the ascending portion of the arch of the systemic aorta was found in the right anterolateral portion about 2.5 cm. above the root of the aorta. The perforation measured 0.2 cm. in diameter. The heart weighed 550 gm. The chambers were not dilated. The left ventricle measured 1.7 cm. and the right ventricle measured 0.4 cm. All valves appeared normal. About 0.5 cm. above the aortic semilunar valves, there was a circumferential laceration of the intima which measured about 1 cm. in length. A probe placed into this laceration showed that there was a communication with a newly formed channel caused by a dissection of the media. This channel was exposed and found to include about two-thirds of the entire circumference of the aorta. The portion which was spared was located posteriorly. The dissection extended proximally to the root of the aorta and distally to a point several centimeters beyond the left subclavian. The central portion of the proximal dissection extended to the intra-aortic portion of the right coronary artery and caused compression of this vessel. Distally, the dissection followed along the innominate artery for a distance of 2 cm. and caused a reduction of its lumen which on cross-section presented only a crescent-shaped slit. Some dissection also involved the left common carotid, reducing the lumen of this vessel by about one-third. No other important vessels arising from the aorta were involved. Serial cross-sections through the coronary arteries revealed patches of atherosclerosis with moderate reduction in the lumen at some points, but no anatomic occlusions were present. The right and left coronaries were about equally involved in the process.

SUMMARY

The fundamental disease in the patient was an essential hypertension resulting in left ventricular hypertrophy. As a complication, there was a dissecting aneurysm whose origin was in the ascending portion of the arch of the aorta, which, during its course of dissection, also involved the right coronary artery, innominate artery and, to a minor extent, the left common carotid artery. The immediate cause of death was rupture of the aorta into the pericardial cavity resulting in cardiac tamponade.

CASE No. 2

The patient is a white male, 41 years of age, who entered the hospital with chief complaint of inability to use his arms. About 1925 he noticed that in doing tedious work, such as pointing stone, his hands began to shake. This continued until 1927, at which time he noticed that while using his arms in work his muscles would "lock" when gripping an object. About 1929 he noticed a weakness in the muscles which controlled the wrist. In 1932 his muscles began to twitch and shortly thereafter he noticed that the muscles which twitched began to degenerate. This began in the extensors of the hand and later involved the scapular group, biceps and triceps. Simultaneously with the muscular twitching and degeneration there was associated a soreness in the muscles. Chilly sensations were also manifest. Also about this time there was a constant tired feeling in the back of the neck and upper portion of the thoracic vertebrae.

Review of systems was essentially negative. The past history was negative except for a history of dengue fever in 1914. The family history revealed that his father had a weakness in one of his legs in early life which cleared up after eating raw wheat for a number of years. Social history revealed that the patient has been a stone cutter since 1914. In 1915 he went to Arizona because of a possible acid-fast infection. While there he worked in a copper smelter where it was necessary to wear a gas mask. He would frequently remove his gas mask to smoke, thus inhaling the fumes.

Positive physical findings were limited to the upper extremity. There was marked atrophy of the muscles of the shoulder girdle, both arms and forearms excepting the brachioradialis on the left and those muscles supplied by the ulnar nerve in the forearm and hands. The last named muscles had to some extent a loss of power. Deep tendon reflexes of the upper extremity were absent. No sensory changes or abnormal reflexes were present. Muscle tests coincided with the obvious muscular atrophy. The abdominal reflexes and those of the lower extremity were present and equal. No abnormal reflexes or other significant neurologic signs were present.

Laboratory Findings: Blood picture within normal limits. This included total white blood cells, red blood cells, differential, hematocrit, and hemoglobin. There was no red blood cell stippling or toxic degeneration of the white blood cells. The Wassermann (blood and spinal) was negative. Gastric analysis was within normal limits.

DISCUSSION

From the physical and neurological examination it was evident that there was only motor involvement. This was a primary spinal cord change. There was an absence of any sign of posterior, lateral column or pyramidal tract involvement. From these few simple facts one can conclude that there was at this time only anterior horn cell involvement. Whether or not there will be developing signs of other tract involvement in the future is questionable. Therefore our diagnosis at this time is progressive spinal muscular dystrophy.

MERCY HOSPITAL

New Orleans

The April meeting of the staff was called to order by Dr. T. F. Kirn at 8:15 p. m. in the lecture room of the hospital.

Dr. Loria presented a motion picture of cholecystectomy in technicolor. The evaluation of the procedure was reviewed; three points were stressed, namely, the anesthetic, exposure, and good surgical technic.

The essayist prefers spinal for anesthetic and multiple retractors for exposure. Under surgical technic he described three methods: (a) fundus to cystic duct (this produces bleeding at bed); (b) retrograde (most frequently used); (c) method of Thorac, of Chicago, and P. Brown, of Berlin. He uses the retrograde method. Although the paper was a presentation of technic, cholecystectomy was discussed by Drs. Monte and Boyce.

Dr. Stadiem then spoke on "Status of Endocrine Therapy in Gynecology" and gave a very interesting talk, discussing those endocrines to be used and those to avoid.

Deaths of the month were reviewed by Dr. Monte and discussed by the staff. Mortality investigation was read and approved on motion by Dr. Monte, seconded by Dr. Vedrenne.

Dr. Ashton Thomas advised the staff of Eli Lilly's trip through their laboratories, the expense being $25.35 which includes train fare and a ticket to the Kentucky Derby. He requested that those wishing to attend, kindly mail their checks to him or to Dr. Zander.

Meeting adjourned at 9:30, following which refreshments were served in the cafeteria of the hospital.

N. J. Tessitore, M. D., Sec.

SOUTHERN BAPTIST HOSPITAL

New Orleans

The regular monthly meeting of the Clinical Staff was held in the Staff Room of the Hospital on Tuesday, April 29, at 8 p. m. The following program was presented: "Preliminary Report of the Blood Plasma" by Dr. J. W. Davenport; "Case of Hypoglycemia Simulating Epilepsy" by Dr. Robert Winter, discussed by Dr. E. Z. Browne; "Death Report" by Dr. Bert DeBard.

TOURO INFIRMARY

New Orleans

The regular monthly meeting of the Medical Staff was held Wednesday, April 9. The program was put on by the residents of the hospital. The first presentation was by Dr. Finn, resident in surgery, and dealt with "Perforated Appendicitis and Sulfanilamide." This paper was followed by one on "The Use of Stilbestrol to Inhibit Lactation" given by two residents in obstetrics, Drs. Evri Mendel and Allan Goldman. Dr. Tom Weiss, resident in pathology, spoke on "The Value of the Culture for Diagnosing Gonococcal Infections." The last subject that was discussed had to do with "Case Reports of Typhoid Fever," a coordinated study by Drs. John Dyer and Robert Haspel.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

May 1.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
May 5.	Orleans Parish Medical Society Board of Directors, 8 p. m. Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.
May 6.	Eye, Ear, Nose and Throat Staff, 8 p. m.
May 7.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. Hutchinson Memorial Clinic Staff, 8 p. m. Mercy Hospital Staff, 8 p. m.
May 12.	Orleans Parish Medical Society, 8 p. m.

May 13.	Eye, Ear, Nose and Throat Society, 8 p. m.
May 14.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. Touro Infirmary Staff, 8 p. m. Woman's Auxiliary, Orleans Club, 3 p. m.
May 15.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
May 16.	Scientific Meeting, Orleans Parish Medical Society with the New Orleans Gynecological and Obstetrical Society, 8 p. m. I. C. R. R. Hospital Staff, 12 noon.
May 19.	Hotel Dieu Staff, 8 p. m. Clinico-pathologic Conference, Baptist Hospital, 8 p. m.
May 20.	Charity Hospital Medical Staff, 8 p. m.
May 21.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. Charity Hospital Surgical Staff, 8 p. m. The Orleans Tuberculosis Hospital Staff, 8 p. m.
May 22.	Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
May 27.	Baptist Hospital Staff, 8 p. m.
May 28.	Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m. French Hospital Staff, 8 p. m.
May 30.	L. S. U. Faculty Club, 8. m. New Orleans Dispensary for Women and Children Staff, 8 p. m.

NEWS ITEMS

Dr. Conrad G. Collins addressed the postgraduate assembly of the Southeastern Surgical Congress in Richmond, March 10.

Dr. Hilliard E. Miller was recently elected president of the American Gynecological Club, an organization with thirty American and ten foreign members. The next meeting will be held in New Orleans, February, 1942.

Dr. B. Bernard Weinstein was recently elected first grand chancellor of Phi Lambda Kappa, national medical fraternity.

Two members of the Society addressed the recent meeting of the Rapides Medical Society. Dr. Gilbert C. Anderson presented a paper on the "Management of Acute Cerebral Emergencies." Dr. Mims Gage presented a paper on "Acute Thrombotic Surgery."

Drs. C. Grenes Cole, Conrad G. Collins, C. Gordon Johnson, P. T. Talbot, and T. A. Watters attended a meeting of the Washington Parish Medical Society, Bogalusa, February 27. Dr. Johnson presented a paper on "Pelvic Pain."

Dr. Marx D. Sterbcow was recently installed as president of the Young Men's Progressive Club. Dr. Sydney Jacobs was toastmaster at the meeting.

Dr. J. O. Weilbaecher, Jr. presided at the recent meeting of the New Orleans Graduate Medical Assembly.

The following members of the Orleans Parish Medical Society presented papers at the Clarksdale and Six Counties Medical Society in Clarksdale, March 12: Dr. Donovan C. Browne, "Chronic Ulcerative Colitis—Its Diagnosis and Treatment"; Dr. C. Barrett Kennedy, "Seborrheic Dermatitis and Acne Vulgaris"; Dr. Eugene B. Vickery, "Modern Chemotherapy of the Urinary Tract"; Dr. Ambrose Storck, "Preventive and Prophylactic Aspects of Penetrating Wounds of the Abdomen."

Dr. T. A. Watters presented a paper on "Sexual Difficulties in Women" at the recent meeting of the Washington Parish Medical Society in Bogalusa.

At a recent meeting in Atlanta of psychiatrists serving on the Medical Advisory Board of the Fourth Corps Area, Dr. T. A. Watters spoke on "Schizophrenic and Related Personalities."

Dr. Alton Ochsner was named president-elect of the Southeastern Surgical Congress.

Dr. Ochsner presented a paper on the "Recent Developments and Modern Management of Ulcer of the Stomach and Duodenum with Special Reference to Hemorrhage," at the Sectional Meeting of the American College of Surgeons in Pittsburgh, March 17-19.

At a recent meeting of the Southeastern Branch of the American Urological Association at Jacksonville, Dr. Robert F. Sharp was elected to the executive committee. Other members attending this meeting were Drs. Hugh T. Beacham, William A. Reed and Eugene B. Vickery.

Dr. Daniel N. Silverman addressed the Harris County Medical Society, in Houston on March 19. The title of his paper was "The Application of Plasma Therapy to Gastrointestinal Diseases."

TREASURER'S REPORT

Bank balance, February 28, 1941	$5,504.91
March credits	1,774,37
Total credits	$7,279.28
March expenditures	1,106.14
Actual book balance, March 31, 1941	$6,173.14

Edwin L. Zander, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

NEW OFFICERS

Dr. Emmet L. Irwin, New Orleans, was selected president-elect by the State Medical Society at the Shreveport meeting. Dr. R. T. Lucas, of Shreveport, was selected first vice-president, and he and other officers, except the president, were installed Wednesday morning, April 23. Dr. C. Grenes Cole retired as president, and Dr. King Rand, Alexandria, took office as president this year.

Other officers selected by the House of Delegates are: Dr. H. B. Alsobrook, New Orleans, second vice-president; Dr. R. F. Sharp, New Orleans, third vice-president. Dr. J. Q. Graves, Monroe, was elected delegate to the American Medical Association, with Dr. Boni de Laureal, New Orleans, as alternate.

Four of the eight state Councilors now serving came up for re-election and were unanimously returned to their offices for two years. They are: Third District, Dr. C. C. deGravelles, New Iberia; Sixth District, Dr. Rhett McMahon, Baton Rouge; Seventh District, Dr. Claude A. Martin, Welsh; Eighth District, Dr. W. F. Couvillion, Marksville.

The following committees were elected: Scientific Work; Dr. P. T. Talbot, chairman; Drs. A. E. Fossier and F. E. LeJeune. Public Policy and Legislation: Dr. R. B. Harrison, chairman; Drs. H. B. Alsobrook, Rhett McMahon, King Rand (president); P. T. Talbot, (secretary-treasurer). Journal: Drs. H. W. Kostmayer and L. A. Le Doux to succeed themselves, Dr. James K. Howles to serve the unexpired term of Dr. Lanford. Medical Defense: Dr. W. A. Ellender.

As the list of officers has been published after the Journal had gone to press, no further details could be given at this time but will be elaborated on in the next issue.

LAFOURCHE VALLEY MEDICAL SOCIETY

A meeting was held on March 26, 1941, in Thibodaux at the Ridge Cafe. The following program was presented:

"Differential Diagnosis of Blood Dyscrasias," by Dr. C. J. Tripoli; "Some Interesting Observations in the Use of the Gastroscope," by Dr. Donovan C. Browne.

After a very interesting and liberal discussion there was served a sumptuous meal. A fine attendance added zest to an enjoyable evening. The State Society and Orleans Parish Medical Society were represented by Drs. C. Grenes Cole, H. R. Unsworth, Robert A. Katz and P. T. Talbot, in addition to the essayists.

PLASMA BANK

The Baptist Hospital is ready to furnish human plasma for intravenous therapy, prepared according to the method advocated by the National Institute of Health, Washington, D. C. This plasma is prepared and labeled according to type, and also pooled. Plasma is prepared in undiluted form; and also 50 per cent plasma with saline; and 50 per cent plasma with 5 per cent dextrose, in saline. The undiluted plasma is kept according to separate type; and the 50 per cent plasma is all types pooled.

The price is $35.00 for a pint of undiluted plasma, and $25.00 for a pint of 50 per cent plasma with saline, or saline and dextrose.

If a recipient will furnish the Hospital with blood donors to replace the plasma, we will credit the account with $5.00 for each donor whose blood is taken, not to exceed four donors in any one case.

DRAFT EXAMINATIONS

The following is the report of the examinations of prospective draftees in the state of Louisiana, as of March 27, 1941.

	CALLED		REJECTED		INDUCTED	
	White	Colored	White	Colored	White	Colored
Call No. 1	336	156	19	5	317	151
Call No. 2	649	460	35	21	607	439
Call No. 3	1618	470	81	19	1483	405
Call No. 4	1050	177	43	11	780	150
Total	3653	1263	178	56	3187	1145

Total white rejections..............4.9 per cent
Total colored rejections...........4.4 per cent
Average rejections ....4.8 per cent

To March 1, 1941:	White	Col'd.
Physically examined by L. B. examining physicians	9639	8132
Number passing physical examination	6031	5127
Per cent passing	62.56	63.04
Per cent failing	37.44	36.96
Total per cent failing to pass physical examination by examniing physicians and induction station	42.37	41.36

I AM AN AMERICAN DAY

The President of the United States, at the request of Congress, has issued a proclamation making May 18 the "I Am An American Day." In celebration of this day, numerous ceremonies and celebrations sponsored by national local organizations of a patriotic, civil and fraternal type will be held throughout the country.

NEWS ITEMS

Dr. W. W. Leake, former superintendent of Charity Hospital for a period of seven years and for many years director of the I. C. Hospital, has been made chief surgeon of the I. C. Railroad. Dr. Leake will make his headquarters in Chicago and will leave New Orleans about the first of May.

Dr. Henry W. E. Walther spoke before the Northeastern Mississippi Medical Society, at Tupelo, on April 14, the subject being "Spastic Ureteritis in Women."

The seventeenth annual convention of the Louisiana Hospital Association was held in New Orleans April 16-19, 1941, with Dr. A. J. Hockett presiding. A most interesting program was presented.

The eighth annual meeting of the American Rheumatism Association will be held at the Hotel Cleveland, Cleveland, Ohio, June 2, starting at 9 o'clock. Following the day's session the annual dinner will be held at 7:30. An interesting program is provided for those who are interested in the problems of arthritis and rheumatoid conditions in general.

The seventeenth scientific meetings of the American Heart Association will be held May 30-31, 1941, at the Hotel Statler, Cleveland, Ohio.

The annual meeting of the American Association for the Study of Goiter will be held in the Hotel Statler, Boston, Massachusetts, May 12-14, 1941, instead of the date originally announced.

The American Medical Golfing Association's Twenty-Seventh Annual Tournament will be held at Cleveland Country Club-Pepper Pike Club, Cleveland, Ohio, Monday, June 2, 1941. Two famous championship courses and a beautiful clubhouse await the nation's medical golfers in Cleveland on the occasion of the A. M. A. Convention.

Some 250 of the 1,413 Fellows of the A. M. G. A. are expected to take part in this 36-hole competition. Each contestant will play both courses. The hours for teeing off are from 7:30 a. m. to 2:00 p. m.

The sixty prizes, in the nine events, will be distributed after the banquet at the Cleveland Country Clubhouse at 7:00 p. m.

Plans are on foot to have a bowling tournament during the next meeting of the American Medical Association. It is hoped that teams can be formed representing various states. Physicians who are interested in bowling should contact Dr. Lewis W. Bremerman, 1709 West 8th Street, Los Angeles, California.

The forty-third annual meeting of the Medical Library Association will be held at the University of Michigan Medical School, Ann Arbor, Michigan, on Thursday, Friday and Saturday, May 29-31, 1941, under the presidency of Col. Harold W. Jones, of the Army Medical Library, Washington, D. C. Hotel headquarters will be at the Michigan Union. The program will include papers on the Cooperation of Libraries, Union Catalogues, Medical History, and Industrial Medicine.

The annual scientific meeting of the National Gastroenterological Association will be held in New York, May 13-16, 1941, with headquarters at the Hotel Commodore.

LOUISIANA CONFERENCE OF SOCIAL WELFARE

The annual meeting will be held in New Orleans at the Jung Hotel, May 1-3. An interesting and variegated program has been provided for this meeting.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Bureau of Epidemiology of the Louisiana State Department of Health for the week ending March 15 showed the following diseases in numbers greater than ten: 125 cases of syphilis, 77 of gonorrhea, 76 of influenza, 61 of measles, 34 of pulmonary tuberculosis, 33 of pneumonia, 14 of scarlet fever, 13 of cancer and 10 of chickenpox. A case of poliomyelitis was reported from St. Martin Parish and two cases of tularemia from St. James. For the next week ending March 22 there were 136 cases of syphilis, 120 of measles, 43 of chickenpox, 39 of pneumonia, 29 of gonorrhea, 22 of hookworm, 16 of cancer, and 13 of whooping cough. The Parish of Iberville reported a case of typhus fever. The large number of cases of measles should be noted; this must be a nationwide epidemic as large numbers of cases are being reported all over the United States. For the thirteenth week of the year, ending March 29, there were listed 100 cases of syphilis, 69 of measles, 39 of pneumonia, 33 of pulmonary tuberculosis, 19 of gonorrhea, 16 of hookworm and of cancer, 15 of chickenpox and 12 of whooping cough. Of the rare diseases, smallpox was reported in one instance in Caddo Parish. For the week closing April 5, 145 cases of syphilis were listed, followed by 94 of measles, 84 of gonorrhea, 27 of pneumonia, 18 of chickenpox, 14 of pulmonary tuberculosis, 13 of cancer, and 11 each of influenza and rabies (in animals). Two cases of poliomyelitis were reported from Lincoln, and one of typhus fever in Orleans. For the week ending April 12, for the first time in many weeks some disease other than syphilis occurred in greatest number in Louisiana, 167 cases of measles being reported; followed by 148 of syphilis, 35 of gonorrhea, 30 of pneumonia, 28 of septic sore throat, 22 of hookworm, 20 of influenza, 16 of pulmonary tuberculosis, 15 of malaria, and 11 of chickenpox. Smallpox was found in one instance in Orleans Parish; one case of tularemia was also reported.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, reports that for the week ending March 15 there occurred 144 deaths in the City of New Orleans as contrasted with 147 deaths the previous week; of these 89 were in the white and 55 in the negro population, and 17 in children under one year of age. In the following week, ending March 22, 149 deaths took place, apportioned 80 white and 69 negro, with 17 deaths in infants. For the week ending March 29, 136 deaths were reported, of which 8 took place in infants, divided 88 white and 48 negro. There was a sharp drop in the number of deaths in the week ending April 5, 116 citizens expiring, due in part to the fact that only three deaths occurred in children under one year of age. The drop in the death rate was about equal in both races.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Aynaud F. Hebert, New Orleans.

President-elect—Mrs. Clarence B. Erickson, Shreveport.

First Vice-president—Mrs. H. O. Barker, Alexandria.

Second Vice-president—Mrs. Cecil O. Lorio, Baton Rouge.

Third Vice-president—Mrs. B. L. Cook, Minden.

Fourth Vice-president—Mrs. R. W. O'Donnell, Monroe.

Treasurer—Mrs. Daniel Murphy, New Orleans.

Recording Secretary — Mrs. Rhodes Spedale, Plaquemine.

Corresponding Secretary—Mrs. Charles Hume, New Orleans.

PRESIDENT'S ANNUAL REPORT

I come before you to express my appreciation for the privilege of being your president for the past year, and to render an account of my achievements.

Twelve months ago this office appeared to me as a long, long climb, but a steady application to duty and your loyal cooperation have brought us to the conclusion of another year. It has been one of pleasure, problems and anxieties, but through it all has been woven a golden thread of friendship, cooperation and understanding.

The routine work of the office has been carried out to the best of my ability. No radical changes of policy were planned or attempted. Each year the work of this office becomes greater, the problems facing the medical profession have increased our potential achievements.

As doctors' wives we should acquaint ourselves with the trends in propaganda and in proposed legislation which affect the medical profession. We are living in a time when alert intelligence and devoted attention afford the only hope of security.

If every Parish Medical Society should announce its desire for an auxiliary, not only would its own membership be increased but, also, a decided change in health programs in its community would be noted. The Auxiliary, more than any other woman's organization, is informed on health questions, has the best interest of the medical profession at heart, loves its traditions and ideals and is determined to uphold its high standards.

At the beginning of our fiscal year, the program was submitted to the State President of the Medical Society, Dr. C. Grenes Cole, and our Advisory Council, Dr. John H. Musser, Chairman, and Dr. Paul D. Abramson. The activities for the year have included: Organization, periodic health examinations, Hygeia, aid to indigent physicians' fund, anti-tuberculosis campaign, doctor's day, anti-cancer campaign and circulation of bulletin. During my term of office I have enjoyed the fullest cooperation from our Advisory Council and from every officer, committee chairman and councilor.

In planning my traveling during the year, I have tried, whenever possible, to visit the parish auxiliary at the time of their regular meeting. This necessitated trips across the State several times, aside from traveling through the state in organization work. It was my privilege to visit every auxiliary in the State, it was most gratifying to note the steady growth and interest. In each parish I was extended a most gracious and hearty welcome, often I was an overnight guest of one of the members; I am deeply grateful for your hospitality.

This year has given me something that neither time nor adversity can take away, it has brought me some of the happiest experiences and many friendships which I shall treasure always. If anything of worth has come from this year, the credit is not mine, but belongs to all of my co-workers, from the official family to the newest member in the newest parish auxiliary. To all of them go my heartfelt thanks, not only for their inspiring cooperation, but also for the supreme privilege of serving them.

The outstanding event of the year was the visit of our National and Southern Presidents, Mrs. V. E. Holcombe and Mrs. M. Pinson Neal, who inspired us with their vision of Auxiliary work. Our personal contact with their gracious personalities makes us appreciate the caliber of our National and Southern officers.

One of the joyful anticipations of Auxiliary members each year is the State Convention with its annual opportunity for friendly greetings, and exchange of ideas for further developments of our beloved organization. An inspiration received at the State Convention is often the background for the greater progress in a parish organization. Much credit is due the general chairman, Mrs. J. E. Heard and her co-workers for a most delightful convention.

At the close of this report is appended a detailed list of the work done throughout the year.

Organization—Mrs. W. D. Simmons, Chairman, with the assistance of our Councilors, is pleased to announce the organization of four new Auxiliaries, namely: East Baton Rouge, Iberia, Ascension and Acadia parishes. We now have a total membership of 736, an increase of 140 over last year.

Public Relations—Mrs. John D. Frazar, Chairman, mailed out over one hundred communications to parish auxiliaries in the form of letters, questionnaires and postal cards in regards to public relations work. Seventeen parishes have been active, they report having talks by local physicians, some subjects used were: Medical care of soldiers, platform of the A. M. A., cancer, maternal welfare, socialized medicine and health lectures to P. T. A. Every organization in the state was reached in some way by chairmen of this committee.

Program—Mrs. A. G. McHenry, Chairman, sent the program suggestions given by National, to all parish auxiliaries. Eighteen meetings were held during the year dealing with health subjects, they were: Tuberculosis, current events in medicine, maternal welfare, articles from Hygeia and the Bulletin, and parliamentary law study. Thirteen essays on health were given in high schools. Two parish auxiliaries had Christmas parties and one an annual Garden party.

Hygeia—Mrs. Creighton Shute, Chairman. Our efforts were to have every auxiliary member a reader of Hygeia and we have placed it in schools, libraries, doctors' offices and beauty salons, and auxiliaries have sponsored school essay contests. The Chairman reports 116 subscriptions to Hygeia.

Indigent Physicians' Fund—Mrs. W. R. Harwell, Chairman, reports contributions from eight parishes, total amount $40.00.

Exhibits—Mrs. John S. Dunn, Chairman, sent letters to all Parish presidents explaining the need for their having an exhibit at the State Medical Convention, and the forms these might take. Literature sent out by the National Chairman of Exhibits was distributed. A State Exhibit has been prepared, showing the projects of the auxiliary, and it will be sent to the annual meeting of the Woman's Auxiliary to the A. M. A.

Historian—Mrs. Edgar Burns, Chairman, reports the history of the State Auxiliary from its organization in 1929 up to May, 1940, which was written up and placed on file with the National Auxiliary records to be published in book form at some future time with the history of other State Auxiliaries. A new History Book has been started and the Parish Auxiliaries have cooperated by sending material.

Press and Publicity—Mrs. J. W. Rosenthal, Chairman, has published news concerning the activities of parish auxiliaries each month; also, the report of A. M. A. Convention and the Exhibits of A. M. A.; an article on Public Relations and on the Bulletin. We wish to thank the New Orleans Medical and Surgical Journal and Dr. P. T. Talbot, manager, for the courtesies extended us.

Archives—Mrs. Dan Silverman, Chairman, reports having filed all data and material given her.

Bulletin—Mrs. Jules M. Davidson, Circulation Chairman, wrote each parish auxiliary president, sending literature and suggesting that chairmen be appointed. Every effort was put forth in trying to interest each member. Our state quota was 140. We secured 48 subscriptions.

Printing and Supplies—Mrs. Rhodes Spedale, Chairman, had 800 Year Books printed and mailed one to each member of the State Auxiliary, to National and Southern Presidents, Advisory Council, President of State Medical Society and the New Orleans Medical and Surgical Journal.

Doctors' Day—Mrs. J. Earl Clayton, Chairman, reports all parish auxiliaries observed Doctor's Day with appropriate ceremonies.

Legislation—Mrs. C. Grenes Cole, Chairman. National programs on Legislation were sent to all parish auxiliaries. The Louisiana State Medical Society asked the auxiliary to refrain from taking part in, or sponsoring any matters pertaining to legislation. This Committee has had nothing before it for consideration.

Revision of By-Laws—Mrs. James W. Warren, Chairman. There has been no request for a change in the by-laws of the State Auxiliary this year, therefore she has no report.

We have 24 auxiliaries, their meetings are enthusiastic and well attended. The philanthropic activities carried on by our auxiliaries are many and varied, practically all of them having a medical significance. They include the making of layettes, donation of eye glasses for indigent children, assistance in anti-tubercular and anti-cancer campaigns, sale of Christmas Seals and also Easter Seals for Crippled Children's Association, Red Cross work such as sewing, knitting, and making surgical dressings. Several auxiliaries gave donations toward the British Ambulance Fund and assistance to other worthwhile causes.

I have traveled 6,201 miles in visiting and organizing parish auxiliaries. During the year I have written 589 letters, 235 postal cards and sent out Delegate and Alternate cards. I wrote an article for the winter News Bulletin and one for the Convention issue. I have written reports for each of the board meetings, including that of the National board. A state Executive Board meeting was held on February 6, with an attendance of twenty.

Each parish president was sent the four issues of the News Bulletin and 24 copies of the Revised Handbook were distributed among the newer officers and chairmen.

A Corresponding Secretary, Mrs. Herbert Cannon, was appointed. After a short time it was necessary for her to resign.

I commend our treasurer, Mrs. M. C. Wiginton, for the excellent work she has done throughout the year.

I wish to express my appreciation to the Recording Secretary, Mrs. P. A. Donaldson, for being present at both Executive Board meetings and recording same so efficiently.

Thanks are extended to Mrs. Arthur Herold for the magnificent way in which she has served as Parliamentarian.

Again thanks and continued success for my successor, Mrs. Aynaud Hébert of New Orleans.

Mrs. Roy Carl Young, President.

o

TANGIPAHOA PARISH

The Woman's Auxiliary to the Tangipahoa Medical Society entertained on February 13, at a delightful tea honoring the State President, Mrs. Roy Carl Young of Covington, at the home of Mrs. M. C. Wiginton, Hammond, La.

Mrs. V. J. Gautreaux, President, presided over the meeting and musical program which followed. Mrs. Young gave a splendid talk on "The Place Which the Doctor's Wife May Hold in the Community," and the help given to its members by the Woman's Auxiliary.

Following the meeting a musical program and tea were enjoyed by the guests. Among those present were members of Orleans Parish, Iberville, St. Tammany and Second District. It was a delightful affair.

Respectfully submitted,
Mrs. Edgar Burns.

o

ASCENSION PARISH

The wives of the Ascension Parish doctors were invited to a "Coffee" given by Mrs. Rhodes Spedale of Plaquemine, in honor of Mrs. Roy Carl Young, President of the Woman's Auxiliary to the Louisiana State Medical Society.

Much to our surprise Mrs. Martin suggested that Ascension Parish organize while Mrs. Young was with us. Since no plans had been made for these ladies to organize, Mrs. Baker suggested that organization be postponed until permission is obtained from the Medical Society. Mrs. Martin stated that the doctors had no objections and to organize now, and should the doctors object they could always disband.

Mrs. Young then outlined aims and purposes of the auxiliary and procedure of organization followed.

Mrs. D. T. Martin of Donaldsonville was elected President; Mrs. Percy LeBlanc, Donaldsonville, Vice-president; Mrs. M. Epstein of Gonzales, Secretary and Treasurer.

Mrs. Young then turned the meeting over to Mrs. Martin. Mrs. Martin's first motion was to appoint Mrs. F. E. Baker, of Gonzales, as Publicity Chairman.

It was decided that a meeting be held at the home of the President on Tuesday, March 11, to draw up the constitution and by-laws, to collect dues, to appoint delegates to the convention which was held in Shreveport, April 21-23, and to select a regular meeting day.

Due to the wives accompanyinng their husbands to the Postgraduate Medical Assembly meeting in New Orleans, Mrs. F. E. Baker, Gonzales, Mrs. M. Epstein, Gonzales, Mrs. D. T. Martin, Donaldsonville, and Mrs. E. A. Schexnayder, Donaldsonville, were the only ones present.

Mrs. Young then most heartily welcomed the Woman's Auxiliary to the Ascension Parish Medical Society into the State Auxiliary and wished them many happy and interesting hours of Auxiliary work together.

Respectfully submitted,
Zoe Spedale, Acting Secretary.

On Tuesday, March 11, 1941, the Woman's Auxiliary to the Louisiana State Medical Society of Ascension Parish met at the home of Mrs. Dawson Martin in Donaldsonville.

The proposed constitution and by-laws were read and set aside for further study before adoption.

Mrs. Martin was appointed as delegate to the convention in Shreveport, with Mrs. Percy Le Blanc acting as alternate.

The women selected the second Tuesday in each month as their regular meeting day; the meetings to be held at the homes in alphabetical order.

The dues were collected for the year from Mesdames Dawson Martin, Percy H. LeBlanc, Nelson A. Cox, H. A. Folse, Myer Epstein, and F. E. Baker.

Visitors from other towns were Mrs. Rhodes J. Spedale, of Plaquemine, and Mrs. Frank O. Tomeny of White Castle.

Ruth Baker,
Publicity Chairman.

ACADIA PARISH

Holding an organization meeting for wives of the doctors of Acadia Parish, a very interesting and representative gathering was present at the home of Dr. and Mrs. J. P. Mauboules in Rayne on Tuesday afternoon for an enjoyed session.

Mrs. Young, of Covington, State President of the Louisiana auxiliary unit of the Medical Association, was a special guest for the afternoon, coming to Rayne to assist with the formation of the Acadia parish organization. She outlined the plans and purposes of the new unit and complimented the Acadia group upon such a promising entry into this new line of activity. She was accompanied to Rayne by Mrs. Simmons and Mrs. Jones, both of Covington, who were special guests for the afternoon.

Officers elected who will serve the new parish organization are as follows: Mrs. J. P. Mauboules of Rayne, President; Mrs. H. L. Gardiner of Crowley, Vice-president; Mrs. E. C. Faulk of Rayne, Treasurer; and Mrs. L. L. Kahn of Rayne, Secretary. It was decided that regular meetings will be held on the second Tuesday of each month, these sessions to alternate between the various towns in the parish. The twelve members present for the meeting held Tuesday afternoon included: Mrs. H. L. Gardiner, Mrs. E. S. Peterman, Mrs. F. C. Winn, Mrs. J. W. Faulk, Mrs. A. R. Morgan all of Crowley; Mrs. J. S. Bailey and Mrs. C. L. Keller of Church Point; Mrs. G. G. Fontenot, Sr. of Morse; Mrs. E. C. Faulk, Mrs. J. P. Mauboules, and Mrs. L. L. Kahn of Rayne, and Mrs. C. E. Brunt of Iota.

This is the *LAST CALL* for reservations for the Nineteenth Annual Convention of the Woman's Auxiliary to the American Medical Association which will be held at Hotel Carter in Cleveland, June 2-6. All Cleveland extends a hearty welcome to you!

Mrs. Jonas W. Rosenthal,
Press and Publicity Chairman.

BOOK REVIEWS

Berkeley Moynihan: By Donald Bateman. New York, The Macmillan Company, 1940. Pp. 354. Price $4.00.

This is the story of the first Baron Moynihan of Leeds, in his day a surgeon of international reputation and repute. Sir Berkeley Moynihan obtained his high standing in the field of surgery because of certain attributes which were given to him by his ancestors and he supplemented these with a tremendous urge to succeed, a willingness to work hard and a desire for accomplishment.

The biography recounts first the Moynihan ancestory. Sir Berkeley was the son of an English army officer who, unlike the army officers of his day, did not have an independent income to augment his scanty salary. His father died when he was a boy so in his early life almost dire poverty was in the home of Moynihan. Through the help of a much beloved older sister, Moynihan was able to obtain a medical education and from then on his story is one of steady success. He graduated high in his medical school class, obtained some good appointments and soon he had a local reputation which brought him an excellent practice. Because of his skill as a surgeon and his apparently charming and delightful personality he rapidly forged to the front and became known all over England. On account of his love of Leeds, his hometown, and his feeling that he had certain obligations to this city, Moynihan never became a London consultant except to a minor degree. He felt proud of the fact he was a provincial surgeon and consultant. Ultimately he did have office hours several days a week in London and did a fair amount of operating there, but truly it might be said that Leeds was his first and his only love.

During his life time Sir Berkeley obtained about every honor it would be possible for an English surgeon to obtain, including a baronetcy, the first medical man appointed to the House of Lords since the time of Lister. He had one or two major ambitions which were not fulfilled, but on the whole his life was one of accomplishment and satisfaction.

In addition to literary and scientific honors, his material success was enormous. He charged large fees and he had an extremely handsome income. He was a wealthy man when he died some six days after the death of his wife who always had been his confidante, best and most admired friend, and the maker of a home life which appears ideal.

Moynihan must have been a delightful man to meet. Extremely handsome, charming in manner, he impressed every one as a radiant personality of force and character. There were certain faults in this man which should be noted but which are slurred over by his biographer who describes him almost as a god. Moynihan was quite vain; he apparently felt and often showed his superiority over his fellowmen and he had practically no close friends. The later years of his life he dominated the meeting, the festive table or wherever a group of men, or women, was collected, an attribute which would seem to be based upon conceit and self-satisfaction. But these few, let us say eccentricities, were after all minor. He was beloved by his patients because with him always it was the patient first. He was truly a doctor, one who loved his profession and had the deepest sympathy for his sick clientele.

Sir Berkeley was an author who wrote with vigor and with charm on subjects many and varied. The excerpts from his writings are a pleasure to read. His fame does not rest upon his reputation as an author nor in fact upon any one or two or three achievements; it is based on the summation of the successful performance of everything that he undertook.

The book is well written; the author, Donald Bateman, sometimes pens such panegyrics that they somewhat lessen the value of the book, as it does not seem to be sufficiently critical. There is much mention of some of America's most distinguished surgeons; Crile and W. J. Mayo seem to have been particular friends of Sir Berkeley. It is to be noted, however, that on pages 146-7 reference is made to Dr. H. W. Keen. This most famous American surgeon's initials happen to be W. W. and not H. W. This is an insignificant error but it might be that other mistakes may have crept into the text which cannot be discovered because of lack of knowledge of England and of familiarity with British doctors and surgeons.

J. H. Musser, M. D.

Treatment of Rheumatism in General Practice: By W. S. C. Copeman, M. A., M. D., B. Ch. (Cantab.), F. R. C. P. (London). Baltimore, William Wood & Company, 1939. Pp. 276. Price $4.00.

As long as knowledge of rheumatism is incomplete, treatment empiric and the literature filled yearly with over two hundred new "cures," an evaluation of the literature for clinicians, by a clinician, will be a valuable addition to the literature. W. S. C. Copeman has prepared such a review and qualified this summary by his own experience plus that of others. It should serve a useful purpose in this field.

William H. Gillentine, M. D.

Leprosy: By Sir Leonard Rogers, K. C. S. I., C. I. E., M. D., F. R. C. P., F. R. C. S., F. R. S., I. M. S., (Retired) and Ernest Muir, C. I. E., M. D., F. R. C. S. (Edinburgh). Baltimore, William Wood & Company, 1940. Pp. 260. Price $4.50.

The volume before us, prepared by two of the best known authorities on leprosy, probably is as comprehensive and useful as any work on this subject in any language. The comments that follow represent, largely, different viewpoints in fields where one man's opinion may be as well founded as another's. The chief criticism relates to what seems to be unwarranted optimism as to the results of medical treatment. This is well exemplified by the first paragraph in the preface to the second edition, which reads:

> "The period of fifteen years that has elapsed since the appearance of the first edition of this work has been one of unexampled progress in our knowledge of leprosy, largely due to the stimulating influence of the then recently discovered improved treatment. This has necessitated much rewriting in preparing the present edition. For example, the former main reliance on lifelong compulsory isolation in prophylaxis—the greatest reproach of modern medicine—has been nearly universally modified; uninfectious or only slightly infectious cases can be treated at out-patient clinics in the early more amenable stages, in place of being hidden until too late to benefit materially from modern treatment. Moreover, the old prison-like asylums are steadily giving place to agricultural colonies with land to cultivate, greatly to the benefit of both the health of the inmates and the finances of the institutions."

The book also expresses confidence as to the results of public health measures, a view that in the opinion of this reviewer fails to consider the natural evolution of the disease in a community. Thus, (p. 123) the alleged success of segregation in Norway and elsewhere is emphasized, but no special mention is made here of the fact that in Minnesota, without any particular attempt at control, the disease has died out.

Again (p. 23), speaking of indigenous cases in Europe we find the following: "With our present knowledge of prophylaxis and treatment it should be possible to stamp out the disease." The reviewer thinks it would be as fair to say the disease may be expected to disappear spontaneously. The somewhat discouraging experience with segregation in the Philippines is fairly set forth on page 114. Compulsory segregation (p. 138) is opposed as likely to lead to concealment of cases and this in the long run would do more harm than good. In view of the undesirability or impracticability of segregating all patients, out-patient treatment is advocated in some circumstances (p. 135).

The following (p. 121) are the principles on which prophylaxis is based:

> "1. To obtain the maximum reduction in the exposure of the healthy to infection from leprosy cases.
>
> "2. To supply the most efficient and prolonged treatment during the early amenable stages in order to prevent the development of infective conditions, or to remove the infectivity if already present.
>
> "3. Any degree of compulsion that diminishes the very early discovery and effective treatment of the cases will do more harm than good by keeping up indefinitely the development of new infections."

The following facts the authors insist must be kept in mind:

> "1. The protection of the highly susceptible children from infection is the key to the solution of the problem.
>
> "2. Children born to and brought up by leper parents are liable to be infected to the extent of 40 per cent of their number, and in a still larger proportion if a parent is in the highly infective nodular stage.
>
> "3. A large proportion of infections arise through close contact with advanced nodular dermal cases; these must require isolation, as was done, mainly under a voluntary system, in the successful Norway campaign.
>
> "4. Most advanced crippled cases, the popular dread of which is quite unjustified, are little if at all infective. Yet in some countries they formed one-third or more of the total cases isolated for life in the old-type prison-like leper asylums, even in some instances under the compulsory system (see South Africa, p. 109).
>
> "5. Treatment to be effective must be begun early and continued for two or more years, with follow-up periodical examinations to detect and treat relapses.
>
> "6. The only way to reduce the incidence of leprosy rapidly is to trace and examine every few months over a period of at least five years—that is, over the usual period between exposure to infection and development of the first symptoms—every person who has been in close contact with any known infective leper."

The total number of lepers for the world is estimated at four or five million, with over 800,000 charged against the British Empire alone. In a table (p. 13, 14, 15) the leprosy incidence in various countries is presented. The data, however, are not to be regarded as comparable, since the time of the enumeration in different countries varies from 1911 to 1938.

Clinicians will find the book useful, though perhaps, not any more helpful than some other treatises. The tuberculoid type of leprosy about which so much is being written is adequately presented. Under "differential diagnosis" (p. 215) sarcoid is not mentioned, though it is a condition that perhaps gives rise to as much difficulty in arriving at a correct diagnosis as any other.

The authors adopt a conservative attitude on the value of histopathologic examinations in leprosy (p. 213), excluding, of course, cases in which bacilli can be demonstrated.

The authors appear to have no doubt as to the beneficial effects of chaulmoogra oil and its derivatives; a view shared by many, but one which will find many dissenters even among leprologists of large experience. One must point out, however, that they have warned against the drawing of conclusions as to the results of treatment from meager experience and from data appraised in an uncritical fashion.

The authors not always have taken the trouble to get the most recent information available, thus (p. 42) they quote the figure for patients at the National Leprosarium at Carville as of 1927, the number of patients at that time being 147. Figures doubtless available in England, in any event readily accessible, would have shown that in recent years Carville figures have averaged from 350 to 375 patients.

Again, in referring to the prevalence of the disease in Hawaii the latest figures given are for 1925 (p. 38); figures very different from those for recent years.

There is some evidence of careless proofreading; thus (p. 44) New Brunswick is spoken of as a province of Western Canada, and (p. 89) the Island of Maui is misspelled Mania; and the Town of Lahaina is misspelled Lohaina.

A statement the authors will want to correct in the next edition of the book is that in Hawaii "women are reported to be so promiscuous that they seldom know who are the fathers of their children" (p. 84).

Physicians in the South will be gratified to find references to the work of Dr. Ralph Hopkins; thus (p. 161) he is credited with data on the incubation period of the disease and (p. 112) a tribute is paid to him for his care of the patients at Carville.

G. W. McCoy, M. D.

Principles and Practice of Aviation Medicine: By Harry G. Armstrong, B. S., M. D. Baltimore, The Williams & Wilkins Company, 1939. Pp. 496. Price $6.50.

Aviation medicine is one of the newer and as yet not well defined specialities in medicine. Because of the recent accentuated interest in aviation, both civil and military, there will undoubtedly be a rather sudden increase in the number of flight-surgeons. The various diagnostic and prognostic procedures essential to this specialty are well described here, and the public health implications of air transport are discussed. Captain Armstrong has rendered a distinct service in making available for the new flight-surgeon the results of studies widely scattered in the American and European literature.

This is not a book for the general physician, but it has much of value for any physician having to do with the various aspects of aviation.

SYDNEY JACOBS, M. D.

Diabetes: By Edward L. Bortz, A. B., M. D., F. A. C. P. Philadelphia, F. A. Davis Company, 1940. Pp. 296. Price $2.50.

This small manual fulfills its function of explaining diabetes in simple and intelligible words to the average patient and yet in providing a considerable fund of information for the doctor. Chapters discussing the various aspects and attention to special phases are contributed by several authors; conventional food tables are included. Most helpful are charts graphically portraying in detail the important lessons in infection, weight control, and diet to be taught to each patient. Any physician who treats diabetes will feel repaid for having read this book and may heartily recommend it to all his diabetics.

SYDNEY JACOBS, M. D.

Office Urology: By Percy Starr Pelouze, M. D. Philadelphia, W. B. Saunders Co., 1940. Pp. 766. Price $10.00.

This book, entitled "Office Urology," offers its readers just what its name implies, namely, a full discussion of those urologic cases met with in office work. Inasmuch as Dr. Pelouze does not himself do major urologic surgery, one should not expect the book to contain any information on surgical technic. He does, however, whenever opportunity affords, offer his reader the fruit of his mature judgment and long experience as regards his evaluation of various surgical procedures. This one fact makes the work valuable to those who seek surgical information.

However, as said above, the book's chief characteristic is that it approaches urologic practice from the office viewpoint, giving a detailed description of the management of these cases in each instance. In view of this fact, and bearing in mind Dr. Pelouze's reputation as an authority, this work can unhesitatingly be recommended to students and general practitioners as being ideally suited to their purposes.

It is seldom the good fortune of any one in reading medical literature to encounter a book as humanly and entertainingly written as this one. It reflects Dr. Pelouze's personality, and, according to his own admission, was written rather casually and at the request of the publishers. It is a relief and a pleasure to find simple homely facts presented in a conversational manner, entirely devoid of fanciful theory and irrelevant detail. After all, it is just these simple facts that are so earnestly sought and seldom found by the general medical man or student in his reading. And added to this is the reassuring knowledge that every statement reflects the carefully weighed and mature judgment of a recognized authority. It is not necessary to single out specific instances to illustrate the rare instructive and entertaining qualities of the work. Suffice it to say that one may begin to read on any page and find his interest held.

In conclusion, and at the risk of appearing over enthusiastic, it is this reviewer's considered opinion that here is one of perhaps a half dozen books in all urology that deserve to be known as classics.

W. E. KITTREDGE, M. D.

Taber's Cyclopedic Medical Dictionary: By Clarence Wilbur Taber. Philadelphia, F. A. Davis Company, 1940. Price $2.50.

This valuable medical dictionary reaches out as a digest of modern medical problems. The 273 illustrations are interspersed in the context in a practical and helpful manner. A high standard for the book is naturally influenced by the wonderful reputation of the editor and his associates. Obviously, this compilation should therefore serve as a needy and ready medium for use by all members of the profession. A library or medical office would be deficient without it.

P. T. TALBOT, M. D.

Atlas of Cardioroentgenology: By Hugo Roesler, M. D., F. A. C. P. Springfield and Baltimore, Charles C Thomas, 1940. Pp. 124, illus. Price $8.50.

The author of this volume is well known from his textbook, "Clinical Roentgenology of the Cardiovascular System." The Atlas is a continuation of effort toward a better understanding of morphologic changes as visualized by the roentgen rays. The intention of the author to illustrate the anatomy and pathology of the heart and great vessels as revealed by roentgen rays has been successfully accomplished in a forceful and concise manner.

The Atlas consists of a series of 60 case reports and 166 illustrations. The history, physical examination and clinical laboratory data in so far as they pertain to the case are considered first. Reproductions of films made in the usual positions, including the oblique views, diagrams, electrocardiographic records, and finally, photographs of the heart removed at autopsy complete the case records. The reproductions of the photographs of the heart at autopsy include the same views and same positions shown on the films antemortem. In this manner, the position, anatomy and pathology of the heart on the film can be closely correlated and studied on similar views of the organ at autopsy.

The text is concise and clear and the illustrations are excellent. This volume should serve as a valuable addition to the reference library of every physician interested in the heart and vascular system.

J. N. ANÉ, M. D.

Medical Work of The Knights Hospitallers of St. John of Jerusalem: By E. E. Hume. Baltimore, Johns Hopkins Press, 1940. Pp. 371. Price $3.00.

The Knights of Saint John in the eleventh century founded a hospital in Jerusalem for the care of the indigent and the pilgrims. Shortly thereafter they established an order to guard the property and lives under their care. When they were forced to abandon Jerusalem they retreated with the Crusaders to whom they gave medical aid, and they established new centers in Cyprus and later in Rhodes and Malta. They continued to aid the pilgrims to the Holy Land and maintain an open road to Jerusalem. Napoleon forced them to abandon Malta but a century ago, at which time the order became established in Rome. The Knights were active in the first World War and now they are called into action, as bearers of medicine and spiritual aid in the second World War.

This is the first comprehensive account of the centuries of medical work performed by the Knights Hospitallers of Saint John of Jerusalem. The activities of several independent orders of Saint John are included in appendices.

The book is admirably written and thoroughly documented, a fine example of scholarly and thorough medico-historical research. It is recommended as an excellent and absorbing story characterized by the maintenance of accuracy in detail despite the dramatic appeal of the material.

B. Bernard Weinstein, M. D.

Getting Ready to Be a Mother: By Carolyn Conant Van Blarcom. New York, The Macmillan Co., 1940. Pp. 190. Price $2.50

Carefully written for the expectant mother, and well illustrated, this useful little manual can be safely recommended to the more intelligent patient.

B. Bernard Weinstein, M. D.

The Pathology of Internal Diseases: By William Boyd, M. D., LL. D., M. R. C. P., Ed., F. R. C. P., Lond., Dipl., Psych., P. R. S. C. Philadelphia, Lea & Febiger, 1940. Pp. 874. Price $10.00.

The third edition of this classic is more complete than its predecessors, but it is still as interesting to read as before. Pathology is presented not merely as a description of diseased organs seen on the postmortem table, but as a summation of the newer knowledge of anatomy, physiology, and bacteriology which the physician must understand to use intelligently the powerful therapeutic agents of today. In this book Dr. Boyd makes available to the practitioner much information ordinarily found only in varying sources. Any physician trying to understand the causes and natural history of "internal diseases" will find excellent source material here.

Sydney Jacobs, M. D.

Behind the Surgeon's Mask: By James Harpole. New York, Frederick A. Stokes Co., 1940. Pp. 308. Price $2.75.

This book is a book which was written entirely for the laity. The medical practitioner might find it of some interest to recall to his mind similar experiences which he has had and which correspond to those of Harpole. However, the book is written in medical terms of one syllable so that the lay person can understand it. It is entirely too elementary for the medical man.

Harpole has some twenty-one chapters in the book. Each chapter starts off with a little story of a personal experience that he has had, many of them dramatic and all of them interesting. After recounting the specific instance of a former patient, for example, one who needs a transfusion, describing the events that led up to this need and stating the results of the transfusion, he will then present about as much space again to a general discussion of that particular phase of medicine. In other words, he uses the anecdote as a text.

The whole book is very well done but as I say, it would not appeal particularly to the medical man; the lay individual will undoubtedly be interested in some of the episodes and emergencies that arise in a physician's every day life. Furthermore, the discussion afterwards of what was done and how it was done and why it was done will give the readers unacquainted with details of medicine a very excellent impression of how much and what a doctor can accomplish.

J. H. Musser, M. D.

Cushny's Pharmacology and Therapeutics: Edited by C. W. Edmunds, A. B., M. D., and J. A. Gunn, M. A., M. D., D. Sc., F. R. C. P. Philadelphia, Lea and Febiger, 1940. Pp. 852. Price $6.50.

Cushny's Pharmacology is revised once more, and brought up to date by Dr. C. W. Edmunds, Professor of Pharmacology, University of Michigan, and Dr. J. A. Gunn, Professor of Pharmacology, Oxford University.

This standard textbook on pharmacology continues to be one of the two most popular books in its field, and likewise one of the two most critical and scientific books on pharmacology in the English language.

The authors have kept abreast of the great amount of important research which has been done particularly in chemotherapy.

This book will continue to be used by many medical students and physicians as their textbook of pharmacology and therapeutics.

Clyde Brooks, M. D.

Applied Pharmacology: By Hugh Alister McGuigan. St. Louis. C. V. Mosby Co., 1940. Pp. 914. Price $9.00.

This textbook of pharmacology is making its bid for recognition as a first class work on this subject.

The book is well written, up to date and contains almost all the important recent discoveries in pharmacology and therapeutics, written particularly from the standpoint of the chemical aide of pharmacology.

The book is well made and contains many very valuable illustrations and charts in colors which add much to the teaching value of the book.

It seems clear that this book deserves to stand in the company of the best textbooks in this field. So as time goes on it should increase in popularity and in usefulness.

CLYDE BROOKS, M. D.

Congenital Syphilis: By Charles C. Dennie, B. S., M. D., and Sidney F. Pakula, B. S., M. D. Philadelphia, Lea & Febiger, 1940. Pp. 96. Price $8.00.

During the past few years many new facts have been added to our knowledge of congenital syphilis, and these additions have practically revolutionized our approach to both the diagnosis and treatment of this very common and important disease. Notwithstanding this fact, Drs. Dennie and Pakula are among the first to bring together all of this information into a single text. Their book is therefore quite timely, since much that has been written on the subject can only be found in the pediatric and dermatologic journals, which are usually not available to the general practitioner who first sees these cases, and thus the necessity for passing on the new concept to him becomes of vital importance.

The book is divided into twenty chapters. The first of these discusses extremely well the examination of the congenitally syphilitic infant. The second chapter is devoted to one of the most controversial subjects pertaining to the disease, namely the serologic reactions and their significance. Chapters 4 to 15 describe the pathologic picture and symptoms produced in each system of the body if invaded by the spirochete prenatally. The remaining five chapters deal with such phases of the disease as "Latent Congenital Syphilis", "Syphilis of the Third Generation."

Many pages of the text are devoted to the treatment of congenital syphilis, and this section is the most outstanding of the whole book. Not only have the authors graphically described the various drugs which have been used and advocated, as well as the correct dosage of the drugs, but they have also pointed out with emphasis and clarity the many toxic effects which should be anticipated in using all the antiluetic drugs. Especially commendable is the discussion of the treatment of congenital syphilis of the central nervous system.

The only adverse criticism to be offered is that in several instances the authors tends to be exceedingly dogmatic. There are many authorities today who do not believe that an infant or child should be treated for congenital syphilis, unless the presence of the disease can be definitely established. Dr. Dennie and Dr. Pakula, on the other hand, apparently believe that all infants born of syphilitic mothers should receive treatment, regardless of the findings in the infant.

H. P. MARKS, M. D.

Physical Diagnosis: By Ralph H. Major, M. D. Philadelphia, W. B. Saunders Co., 1940. Pp. 464. Price $5.00.

This is a second edition of a textbook that has established itself as a reliable guide in the field of physical diagnosis. There are numerous changes in the book both in illustrations and data. Although a revision has been made and new material incorporated the general structure of the book remains the same. There are several poorly constructed sentences that are noted in the book that may be misleading to the student; in a textbook on physical diagnosis this is quite an important matter. However, all things considered, it is one of the better books and can certainly be recommended.

I. L. ROBBINS, M. D.

Management of the Cardiac Patient: By William G. Leaman, Jr., M. D., F. A. C. P. Philadelphia, J. B. Lippincott Co., 1940. Pp. 705. Price $6.50.

One may begin a review of this book by remarking at once—excellent. I know of no other single volume in which an author has so successfully succeeded in combining diagnosis and treatment; the former brief but fully factual, the latter at length but in such detail as to convey clearly to the doctor the steps to be followed in the management of the individual with heart disease. The illustrations are splendid. The case reports that serve as illustrations of diagnostic problems and as the starting points of therapy in the various types of heart disease have been wisely chosen. There is an extensive section on the "Introduction of the Study of Electrocardiography." Frankly, there is no doubt but that a good many things have not been considered by the author, but this is far overshadowed by the great amount of material that he has incorporated. It is not necessary to go into a detailed account concerning the actual data of the book. One can almost assure his readers that there will be few clinical problems in cardiology that will arise in his practice but that this book will prove a valuable aid. There is, additionally, a well chosen bibliography and a good index. The book itself is well done; the paper and printing are fine. And to cap it all, it is reasonably priced as medical books go. There will be some who will point out errors, inaccuracies, omissions; undoubtedly in a second edition there will be corrections to be made; but the fact remains that in its sphere it will serve a most useful purpose and fill a want that has long been felt by the physician in general practice as well as the student at a loss as to know exactly what to do and obtaining little more than general advice from the average textbook. I heartily recommend this book and feel it merits the consideration of the profession.

I. L. Robbins, M. D.

The Electrocardiogram and X-ray Configuration of the Heart: By Arthur M. Master, B. S., M. D., F. A. C. P. Philadelphia, Lea & Febiger, 1941. Pp. 222. Price $6.50.

This monograph of two hundred eleven pages is presented in atlas form and by reproductions of electrocardiograms and x-ray pictures.

The variations of the normal electrocardiograms are described, the changes that take place from childhood to middle life and the effect of changes in position of the body. Different valvular diseases, hypertension, pulmonary disease, deformities of the chest and their effects on the heart and the electrocardiogram are also described.

On p. 100, one electrocardiogram is stated to show deep Q 4. Preceding the downward deflection there is a small positive wave. It would be best to call this small R with deep S. He states on p. 138 that in right axis deviation high voltage indicates left ventricular hypertrophy. These and a few other interpretations may be questioned; however, there are many good descriptions and explanations.

The reproductions of both x-rays and electrocardiograms are well done and easy to read. Any one interested in this subject, will profit by reading this book.

J. M. Bamber, M. D.

The Emperor's Itch: the Legend Concerning Napoleon's Affliction with Scabies: By Reuben Friedman, M. D. New York, Froben Press, 1940. Pp. 82. Price $1.50.

It would not be surprising if scabies, with its love of wars, camps and crowds, was added to the imposing list of afflications of the Emperor Napoleon. Nevertheless the author goes a long way to prove that it was not scabies that kept the hand beneath the cloak.

Barrett Kennedy, M. D.

PUBLICATIONS RECEIVED

The Commonwealth Fund, New York City: Plague on Us, by Geddes Smith.

F. A. Davis Company, Philadelphia: Proctology for the General Practitioner, by Frederick C. Smith, M. D., M. Sc. (Med.), F. A. P. S.

John Bale and Staples, Limited, London: Gastric and Duodenal Ulcers, by Harold Avery, D. Sc., M. B., M. R. C. P.

Harper & Brothers, New York City: Science and Seizures, by William G. Lennox, M. D.

Lea & Febiger, Philadelphia: Roentgen Interpretation, by George W. Holmes, M. D., and Howard E. Ruggles, M. D.

The C. V. Mosby Company, St. Louis: Cardiac Classics, by Fredrick A. Willius, M. D., M. S. in Med., and Thomas E. Keys, A. B., M. A.

The Williams & Wilkins Company, Baltimore: Techniques of Conception Control, by Robert Latou Dickinson, M. D., and Woodbridge Edwards Morris, M. D. The Avitaminoses, by Walter H. Eddy, Ph. D., and Gilbert Dalldorf, M. D.

New Orleans Medical
and
Surgical Journal

Vol. 93 JUNE, 1941 No. 12

INAUGURAL ADDRESS*

KING RAND, M. D.
ALEXANDRIA

To you, my fellow members who are here representing the Louisiana State Medical Society, the expression of my policy requires few words: I pledge myself for the coming year to carry on the high ideals and purposes of this organization to the best of my ability, with your needed cooperation and God's blessings. To the guests may I explain that custom dictates that the incoming president on this occasion make a speech; tradition is the strongest of laws, so be patient.

It is fitting just now, as America is anxious and fearful for its liberty won by the sacrifices, travail and life's blood of our forefathers—a liberty endangered by the ambitions of a mad European paper-hanger, who with intrigue, mendacity and treachery, masked by eloquence, plunges three continents into war and leaves the rest of the world in anxiety and fear—it is fitting, I say, to dedicate these moments to the physician, the man of peace, who in time of stress devotes his knowledge and skill to the purposes of war, to salvage what the rest of mankind tries to destroy. It is appropriate just now publicly to acknowledge the debt America owes to the military surgeon; the professional who makes it a study and a life's work, forming a nucleus in time of peace, and around whom gather from their offices and wards the civilian doctors in time of war, to form the real force of the medical service; and to the contract surgeons, who in the past have rendered a noble service, little appreciated, and have done so without hopes of advancement or recognition. Of these men I would speak to you. We call them army surgeons, though appropriately in the past and in line with their work they are army physicians as well.

The surgeon, as we picture him, know him and appraise him, is a comparatively recent arrival on the scene. The great characters of ancient medicine were essentially internists, Hippocrates and Galen as examples. The surgeon as we first find him was not held in high repute, and was looked upon with a wee bit of suspicion. He comes on the world's stage an itinerant specialist, peddling his wares through the countryside, his technic a kind of faulty sleight of hand, and his ethics in the early embryonic state. For centuries he led a hybrid existence, half-barber and half-surgeon, but the halves were not equal for he was first a barber apprentice; hence the red stripe which adorns the pole by the door of the present tonsorial parlors, a deserved heraldic bend. Up to the time of Frederick the Great, the duties of the army surgeon included the shaving of the officers of the line. The Barber-Surgeon Guild was dissolved in England less than two hundred years ago. The surgeon first received recognition and respectability, as an army surgeon, and there the first great surgeon appeared; he, who discarded magic and superstition and dogma, to utilize his powers of observation and make his own deductions, Ambroise Paré. Garrison, the medical historian, places him along with John Hunter and Lord Lister, as the world's three great surgeons of all time, the prototype of the

---

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, April 22, 1941.

American army surgeon, a sketchy picture of whom I shall try to give you.

The defiance of the Colonies against King George III and his Empire was undertaken with great spirit, but about all the Revolutionists possessed was a cause, and very little training or equipment for war. There were about thirty-five hundred doctors scattered throughout those thirteen colonies; two hundred of them held diplomas, there being two medical schools, one in Philadelphia and the other in New York. Twelve hundred of these men served in the army or navy. One of Washington's first acts, after an inspection of the army, was to recommend to the Continental Congress the organization and improvement of the army medical service, but as this remarkable man with his ragged army at Valley Forge reflected the true status of the poverty and depletion of the army, one needs little imagination to realize the lack of equipment in the little considered medical service in the Revolutionary War. The army surgeon frequently fought in the line, and the battle over, repaired to the nearest available farm house utilized as a hospital, to function as a surgeon, limiting his efforts mostly to amputations, probing for bullets, trepanning and the treatment of fractures. His position did not merit a uniform; he was provided with one, during the War of 1812, black in color, we hope without logic, and of all things patterned after the paymaster's, but with the collar higher in the front and more uncomfortable. His pay was one and one-third dollars per day and this in Continental money. As has always been the case, his duties were more those of the physician than the surgeon. Thomas Jefferson, in a letter to one of his friends, states that "more than half of the army is down with the smallpox." Jenner was then making his classical observations which were to make him famous and help rid the world of smallpox.

As in all wars, diarrhea and dysentery plagued them. A medical officer, writing to his general, states that there might be a dietary factor in dysentery but that in his opinion cold and exposure are the important etiologic considerations, and suggests that each man be provided with a woolen undershirt, to be worn according to Benjamin Franklin's advice, until mid-summer and then be put back on the next day. As might be expected in an army so poorly supplied, scurvy was rampant. We read that the approach of spring is hailed with its wild onion, which was found to be a specific treatment even if slightly heroic. The treatment of the disease was an initial dose of calomel grains 30, with grains 11 every hour thereafter, accompanied by bleeding every thirty to thirty-six hours.

John Jones' "Treatment of Wounds & Fractures" written in 1775, was the first medical book by an American author. Pus in a wound was the natural and expected thing and the term infection reserved for the complications of erysipelas, gangrene and secondary hemorrhage. "Flying" ambulances were used, chariot-like in construction, designed and used rather to carry the doctor to the patient in the field than the patient to the doctor. It is interesting to note that the word "ambulance" is derived from the Latin *ambulare*, meaning to walk, and originally was applied to a mobile hospital which followed the army. Typhoid, typhus and pneumonia were prevalent. But, if in our present state of knowledge we look back with little regard for the medical and surgical attainments of our profession in those stormy days, we must attribute all to the state of knowledge of the day and remember that they also excelled in other lines, many being governors, judges, legislators, cabinet members, diplomats and generals. The signature on the Declaration of Independence, following that famous one of John Hancock's, is a physician's. Five of the fifty-six signers were physicians.

The medical history of the War of 1812 may be summarized with the statement that, of more than eleven thousand hospital admissions, there were but seven operations performed. One of the men who served here, William Beaumont, was to make his classical observations a few years later on the equally famous St. Martin and establish a scientific basis for gastric function. Remember, Laennec was yet to fold his paper cone stethoscope and publish his classic on signs of the chest.

The meteorologic reports of the post surgeons, begun in 1826 and compiled by the surgeon-general, established our present Weather Bureau. Ten years later the Surgeon-General's Library, now the Army Medical Library, was started, and is continued to today. It is said to be America's greatest contribution to the field of medicine. In the 1840's came anesthetics, ether, nitrous oxide and chloroform, to relieve a suffering world, and be used in the army for the first time with General Scott in Mexico, during which campaign Porter recorded that he did not see a single case of tetanus, hospital gangrene or secondary hemorrhage.

The War Between the States found both sides ill prepared. The Northern armies were supported by an industrial people, able to equip and maintain a medical service. The Southern army was backed by an agricultural people, soon cut off by the Federal blockade, and was never able to expand and properly equip its medical department, manned in the whole by physicians from the rural areas unaccustomed even to civil surgery. During this war, horse-drawn ambulances of two types were developed; hospital trains and boats were constructed, the former transporting a quarter of a million men. The City of Washington at one time had more than twenty thousand hospital beds. The Letterman Plan, for the evacuation of the wounded, was started in 1862, and has remained in substance the plan utilized up to and including the World War. Female nurses were authorized when expediency demanded, with remuneration at fifty cents per day. It must be recalled that just six years before, during the first year of the Crimean War, the English losses were two and one-half that of their allies, the French, when Florence Nightingale with her human genius for cleanliness appeared and the losses dropped to one-thirteenth of those of the French. In contrast to the Revolutionary War, calomel was stricken from the table of supplies. The death rate from disease alone was sixty-six per thousand. The horror of this period was hospital gangrene, differing from gas gangrene of today in that the flesh sloughed, crepitation was not noted, and secondary hemorrhage common, controlled by digital pressure by relays of men for periods up to three weeks.

The Southern surgeon with few exceptions utilized any available buildings for hospitals, the nursing by men from the ranks assigned for such duty, assisted by women volunteers. A picture of this phase of war is recorded by Kate Cummins of Mobile in her book, "The Confederate Army of Tennessee," a classic of its kind. The hospital records show that the wounds were treated with tannic acid solutions and chlorinated water, the hospital gangrene with nitric acid. The open wounds were given a slow continuous irrigation with cold water from elevated vessels, suggestive of the Carrel-Dakin treatment of the World War. It must be remembered that bacteriology was an unknown science and that Lord Lister was to publish his historical paper on antiseptic surgery, just four months after Lee surrendered at Appomattox Court House, a medical step which, with anesthesia, was to open the field of surgery to undreamed of limits.

In 1873 the first schools of nursing were opened in New York, Boston and Philadelphia. The 1890's were to bring the Widal test and the roentgen ray. With the explosion of the battleship Maine in Havana Harbor, Congress appropriated fifty million dollars to carry on the war with Spain and twenty thousand dollars was assigned the medical department as their part. Its supplies and personnel were meagre and the former finally were furnished more by the Red Cross than the national government. War wounds were no problem in this conflict, but typhoid demanded its toll.

At this time it was not known that malaria and yellow fever were transmitted by mosquitoes, practically unknown that typhoid could be conveyed in other ways than by water—the little knowledge that is so dangerous a thing. In eight camps there were thirteen thousand cases with nine hundred deaths, constituting 86 per cent of all the deaths. Ignorance, not of the medical men in the service but of medical science as a whole, was the cause. No one man can be blamed; it was the characteristics of the day. Can we blame the quartermaster of that day for slow transportation; the signal officer for delayed communications which could not carry further than a ship could be seen? The Dodge Commission appointed by the President to inquire closely into all activities of the war concluded: "The well trained, faithful overworked surgeons deserve the thanks of the American people for their splendid work." To support these conclusions I need but to remind you that one of these men, Dr. Walter Reed, with three contract surgeons, was to form the committee for research into tropical diseases and establish beyond doubt that mosquitoes were the intermediary hosts in yellow fever, a revolutionary dictum which was to clear the tropics of this dreaded disease, remove fear from our Southern cities and make the completion of the Panama Canal a possibility and a reality; of Sternberg, the surgeon-general, the discoverer of the causative organism of pneumonia; of Dr. Darnell, another of them, who devised the method of making drinking water safe by chlorination, a method adopted all over the world, an achievement little appreciated, but one which has probably saved more lives than any other single human act.

The year 1901 saw the caduceus adopted as the insignia of the medical department; Fords began to rumble down the country lanes; the Wright Brothers took off at Kitty Hawk, little dreaming of the forces they had liberated to change human ways, to accelerate joy and multiply the sorrows of mankind. The year 1906 saw the first motor ambulance. Three years later typhoid vaccination was started in the army and too soon the Huns were on the march. While we watchfully waited, private interest, the medical societies and the army prepared. Forty-six ambulance companies were organized; fifty base hospitals were made ready by medical schools and established hospitals, these to be later the backbone of the service in France. Six of them arrived in France before Pershing and contributed the first officer, and the first enlisted man of the American army killed in action in the war. The medical department was to have new experiences. There was the demonstration of the efficacy of typhoid vaccine and sanitation (there were fifteen hundred cases of typhoid. Had the same rate prevailed as in the Spanish-American war, there would have been 500,000 cases); the administration of tetanus antitoxin, which kept this disease at a minimum; experience gained in treating the casualties of gas warfare—efficient in removing men from combat, but humane in that its toll of death was small; the treatment of too many cases of gas gangrene resulting from jagged wounds inflicted on the long fertilized fields of agricultural France, with the results none too spectacular; the firm establishment of the technic of debridement in devitalizing war wounds; the enthusiasms of the Carrel-Dakin method of treating wounds, an enthusiasm which waned with the years; the problem of shell-shock to those too frail in body and stability to withstand the horrors of modern warfare. Again there were ten times as many men admitted to hospitals with disease as there were with the wounds in battle. Influenza and respiratory diseases accounted for 82 per cent of all deaths. The magnitude of the service can be somewhat appreciated when it is stated that 7,000,000 men were examined, 4,000,000 men treated and that the personnel of the medical department on Armistice Day outnumbered by more than 100,000 the standing army in 1939. And this day heralded a peace which was not to endure. Today we feverishly prepare for any eventuality. How shall the medical profession meet the challenge? I think with befitting courage inspired by altruistic motives worthy of its past, as it tries to envisage the future's demands, profiting by Europe's experience.

With the modern trend of war and its objects to destroy whole cities, to maim and kill civilians, men, women and children, the necessarily resulting mass psychoneuroses bring to the medical man new problems; the concentration of armies tends to promote the spread of respiratory diseases and thus increase the incidence of pneumonia. Science in the last few years has begun to make encouraging progress and within the last two years has lowered its mortality in a spectacular manner. That complex entity known as shock, resulting from trauma, its ways still perplexing, is receiving concentrated attention, but its major control apparently in sight. With blood banks for transfusion a reality in major hospitals, plasma banks appear to be a greater blessing in that they are more stable, more concentrated and more elastic in their use because they may have a wider application in both shock and hemorrhage. There are increasing accumulation of data that great bodies of men may in advance be protected against tetanus by prophylactic administration of the toxoid. There is encouraging hope that the sulfanilamide group which has accomplished so much in the treatment of pneumonia may prove a great blessing in the treatment of compound fractures, open wounds and peritonitis. Even dysentery, which has been an unwelcome camp follower in all wars, may have met its match in this marvelous group of drugs.

At one time the Red Cross carried some immunity from gun fire; today its adornment of a hospital roof merely invites disaster, a change which might force the abandonment of the present method of fracture treatment with its efficient traction apparatus aiming at perfection in results, as such complicated contraptions make it difficult or almost impossible to move the patient to a place of safety, forcing the treatment of many wounds with plaster casts in order that the patient may be transported quickly to a bombproof cellar. The medical personnel of aviation has its own problems brought on by high altitudes and speeds almost unbelievable in the modern fighting plane. Verily we have traveled a long way since Bunker Hill. We have some consolation. That same force—the human mind—which fashions the horrors of war, can with more humane motives be expected to create ways and methods to repair the damage wrought,—developments which will endure when war will have been silenced. Such is the unending work of the physician and surgeon in war and peace.

IN MEMORIAM*

M. D. HARGROVE, M. D.
Shreveport, La.

Each year our program has a designated place for a memorial service for those of our profession who have passed away during the year. As Shakespeare has said:

> "Death, a necessary end, will come
> When it will come."

and thus it is, that the career of 33 of our members has come to a close.

Life, after all, covers a relatively short time, only a few years. Short indeed, to accomplish the many things that most of us hope to accomplish. Physical development comes early and with less effort so that the majority of us attain that end. Mental and spiritual development, though, are products of the mind and soul and can only be attained by prolonged and consistent effort. But, if pursued diligently, there is no limit to our possible achievements in mental and spiritual growth.

Doctors, as a class, are peculiarly situated to pursue that mental and spiritual development. Practitioners of a profession that still has many unsolved problems, many mysteries yet to unravel, we should be tempted to the highest mental growth; contacts with a varied group of people under circumstances that should afford us the greatest opportunity for spiritual achievement. If we are to be truly doctors, worthy of the name and of that beautiful eulogy of Robert Louis Stevenson, in which he sets us apart, then most diligently must we pursue the rainbow of mental and spiritual growth.

These, whom we honor, have done that and by their efforts have enriched our profession and the lives of those with whom they came in contact. Some of them attained enviable places in our profession and all of them enriched many lives in the pursuit of their art. Their passing has brought sorrow to all of us, but it should also make us the more resolved that they and the others who have gone before shall not have labored in vain. We should be the more resolved to dedicate our lives to our profession, the noblest of them all, to the end and that it may remain free and may continue to increase in usefulness to our people.

---

*Memorial address read before the sixty-second annual meeting of the Louisiana State Medical Society, April 21, 1941.

Those of our members who have passed away since we last met are:

NAME	ADDRESS	DATE OF DEATH
Isaac N. Adams	Pineville	1941
Jos. C. Allgood	Summerville	1940
Marie O. Becnel	New Roads	1940
Margaret P. Bowden	New Orleans	1940
S. M. Brian	Winnfield	1940
Jos. F. Cazayoux	New Roads	1940
John A. Devron	New Orleans	1940
John E. DiGiglia	Lake Charles	1940
Jos. A. Estopinal	New Orleans	1940
Jos. L. Ewing	Shreveport	1941
William H. Floyd	Jena	1940
Thos. C. Foreman	Baton Rouge	1940
F. R. Frazar	Merryville	1941
Homer H. Gates	Franklin	1940
Wm. H. Hamley	Lake Providence	1940
A. A. Keller	New Orleans	1940
F. J. Kinberger	New Orleans	1940
J. M. Koelle	New Orleans	1940
John W. Lamon	Montegut	1940
John A. Lanford	New Orleans	1940
A. L. Levin	New Orleans	1940
Royal L. Love	DeRidder	1940
Wilkins McDade	Minden	1940
Henry E. Menage	New Orleans	1940
C. S. Miller	Jackson	1940
James C. Parrott	Montrose	1940
B. B. Reynaud	Baton Rouge	1940
G. D. Sagrera	Arnaudville	1940
Hubert S. Smith	Thibodaux	1940
Robert M. Smith	Gonzales	1940
Oliver C. Teagle	Campti	1940
Guy Wimberly	Ringgold	1940
William L. Wise	Chopin	1940

"God's finger touched him and he slept."
Tennyson—In Memoriam.

SYMPOSIUM ON RECENT ADVANCES IN VITAMINS*

CHEMISTRY OF VITAMINS

ARTHUR O. KASTLER, Ph. D.†
NEW ORLEANS

Everyone is familiar with the fact that all the known vitamins have been discovered as the result of specific pathologic conditions which develop in man or experimental animals when certain factors are absent from the diet. The addition of these organic "accessory substances" to the deficient diet, in amounts so small they could not possibly affect the calorific value or indeed the fat, carbohydrate or protein content of the foodstuff, was shown to prevent or to cure the particular abnormality. With little or no knowledge of the chemical character of the potent materials, each was assigned an arbitrary alphabetical name and was known in terms of its solubility, or as the anti-substance for the prevention of a well-characterized syndrome. Food sources were evaluated in terms of units representing biologic response of test animals to the substance in question.

With the comparatively recent knowledge of the precise chemical structure of at least ten vitamins that have now been synthesized in the laboratory, it has become possible to be more specific, and not only to refer to a chemical individual, but to express its content in various foodstuffs, its daily requirement and its possible administration in concentrated form in the exact terms of milligrams of the pure product.

Minute amounts of these chemical individuals are extraordinarily potent. Vitamin A, for example, isolated from large quantities of cod liver oil, is so effective in the body that a single ounce of the crystalline synthetic material would be a supply sufficient for an average individual's lifetime, and others are comparable. The daily requirement is therefore only a matter of milligrams. While some species seem able to synthesize several of the vitamins, with the possible exception of vitamin D, the human requires the intake of small but definite amounts of each of them at relatively short intervals of time. The possibility of injury from overdosage with vitamin-rich foods has been extensively studied, and there is general agreement on the point that there is no danger of overdosage from natural foods, in which the vitamins occur in only a few parts per 10 million, or from a reasonable use of pure vitamin supplements up to at least one thousand times the protective requirement.

---

*Read before the Orleans Parish Medical Society, November 11, 1940.

†From the Department of Biochemistry, Tulane University of Louisiana.

Some idea of the physiologic importance of vitamin substances which supply chemical configurations not found in ordinary purified foods and not manufactured *in vivo*, is obtained by mentioning their close chemical relationship to some hormones, and their wide distribution in cellular enzyme systems, especially those concerned with oxidation-reduction mechanisms.

In discussing the vitamins, it is necessary to consider them one at a time, for there is little true chemical relationship between them that permits of their accurate classification. Vitamins A, D, E and K are among the so-called fat-soluble ones, while vitamin C and members of the B complex are water-soluble.

VITAMIN A

Vitamin A, the fat-soluble anti-xerophthalmic substance, has been shown to be related to the yellow pigment carotene. The vitamin itself, though its chemistry has been definitely worked out, has been assigned as yet no chemical name. It is a cleavage product of any one of four related plant pigment precursors, is an unsaturated alcohol of high molecular weight, and is colorless. As the free vitamin it is rather easily destroyed by oxidation and by light, so it is not suitable in this form for purposes of standardization, although it has been crystallized with a potency of 3,000,000 units per gram. In natural sources the vitamin is relatively stable, for it is combined with fatty acids in ester form. Six tenths microgram (millionth of a gram) of beta carotene, a more stable precursor, is accepted as the International unit, the adult requirement being 3000 units, or 2 milligrams, per day, which amount could be furnished by about 5 grams of cod liver oil. Milk, eggs, liver and green vegetables are among its better dietary sources.

VITAMIN D

Vitamin D, the anti-rachitic agent, has been prepared from natural sources in crystalline form and though its chemical structure is definitely known, it has not as yet been synthesized from its elements in the laboratory. There are several substances with varying degrees of antirachitic value that differ only slightly from each other and from cholesterol in points of unsaturation or length of side chains. They are all sterols that have been given their vitamin properties by "activation" by chemicals or by ultraviolet light, which serves to rupture a bond in one of the four rings in the complex sterol molecule. The two most important members of this group are calciferol (D_2) that is produced by irradiation of ergosterol of plant origin, and D_3 by similar treatment of the animal product 7-dehydrocholesterol. The International unit is 0.025 microgram of calciferol, and the daily requirement for an adult is about 500 units or 0.01 milligram, which is considerably less than that of the other vitamins. This amount would be found in 6 grams of U. S. P. cod liver oil or in 0.5 gram of halibut liver oil. Most common foods contain a scarcely detectable amount. Some foods acquire anti-rachitic potency when exposed to ultraviolet light, and there are on the market foods that have been fortified by the addition of synthetic potent sources. The individual, also, is capable of synthesizing his supply from body sterols when sunlight or some other source of ultraviolet light is available and used in suitable amounts.

VITAMIN E

Vitamin E, the rat anti-sterility vitamin, has been shown to be any one of three closely related substances called tocopherols. These are di-cyclic alcohol compounds with a sixteen carbon atom unsaturated side chain. They are stable to heat, acid and alkali, but are sensitive to light and destroyed when the fat in which they are found dissolved becomes rancid. The alphatocopherol has the greatest vitamin potency of the three, and it has been crystallized and synthesized in the laboratory. It is found widespread in most natural foods, particularly seeds and green vegetables, so its value in human nutrition is difficult to define, and there has been no report of daily requirements. Most workers are still skeptical of the claims for vitamin E therapy, though, since it is now commercially available, there have been some reports in which it was claimed to be effective in the cure of clinical degenerative diseases of the muscular and nervous systems.

VITAMIN K

Experimental chicks and geese show a prolonged clotting time when certain dietary factors are withheld in the course of nutritional studies. A fat-soluble substance, vitamin K or anti-hemorrhagic vitamin, that had previously escaped recognition was shown to be deficient in the diet. Relatively crude preparations of this substance were found to be effective in human cases in which the clotting time was considerably elevated coincident with a lowered blood prothrombin level. Pure forms of vitamin K have been isolated from alfalfa leaf lipids and from bacterial fat fractions, while several compounds having high vitamin K activity have been synthesized in the laboratory. The type of structure has been shown as a methyl naphthoquinone (two fused benzene rings) with a side chain which is very long in the natural vitamin. Shorter side chains and substitution groups in the synthetic compounds do not materially affect the physiologic properties, but render the substance water-soluble, which permits its administration without the bile salt feeding necessary for the absorption of the fat-soluble natural product. Egg yolk, meat fat, liver and green vegetables are some good dietary sources. Phthiocol, which was one of the first pure compounds identified with antihemorrhagic function, was isolated a number of years ago as a yellow fatty material from tubercle bacilli. The vitamin is destroyed by acid, alkali and oxidizing agents, but is stable to light and heat. It is apparently not required by all animals, being synthesized by certain intestinal bacteria.

VITAMIN B COMPLEX

The original water-soluble vitamin B of Funk[1] was soon shown to be multiple in nature and gave rise to the term B complex. Water extracts of yeast or liver were found to contain, among other things, a heat-labile fraction called B_1 which was associated with the integrity of nerve tissue, and a heat stable fraction called B_2 that did not affect anti-neuritic symptoms, but was associated with growth and with the prevention or cure of pellagra in man and black tongue in dogs. This B_2 fraction has itself been found multiple, its principal division being B_2 or G, a P-P factor, and B_6, all of which have now been chemically identified.

There is biologic evidence for six or seven other vitamin B fractions than those already named, which, while not having been shown necessary in human nutrition, are concerned with the growth and well-being of chicks, rats and pigeons. With one exception, chick anti-dermatitis factor or panthothenic acid, their chemical compositions are still unknown.

Vitamin B_1, the anti-neuritic or anti-beri beri substance, is now known to be the material, described by the original term "vitamine", that Funk crystallized in 1911. The crystals were not pure, and in spite of consistent endeavor in various laboratories, the actual isolation of the pure vitamin was not accomplished until fifteen years after Funk's discovery. Even then it was obtained only in minute amounts not sufficient for study, and it was not until 1936 that its structure was discovered and its synthesis accomplished. The compound is called thiamin and is a double ring structure. One ring contains nitrogen and sulfur which together with carbon atoms form a five-membered (thiazole) ring found in no other substance in nature, while the other ring is the familiar pyrimidine nucleus found in uric acid and other compounds, but which in thiamin has side methyl groups in unusual positions. It is the presence of these uncommon structures that made the identification of the compound difficult over so long a period of time. It is the only vitamin that contains sulfur, whence its name, and it is not directly related to any other sulfur-containing compound now known in the body. Thiamin is made commercially and sold as the thiamin hydrochloride salt. It is comparatively stable towards dry heat, but is destroyed by autoclaving and by sulfite. The International unit of B_1 is equivalent to 3 micrograms of thiamin hydrochloride, and the daily adult requirement is 300 units or about 1 milligram of the vitamin. It is fairly widely distributed in foods, good dietary sources including milk, whole cereals, potatoes, vegetables and meat.

Thiamin combined with phosphoric acid is a constituent of co-carboxylase, an enzyme of wide distribution throughout the body, that is concerned in the oxidation of carbohydrates. It is, without doubt, fundamentally important for cellular metabolism, as evidenced by the fact that it has growth-stimulating effects, not only on animals, but on yeasts and green plant roots.

Riboflavin (vitamin B_2 or G) has been crystallized and is now available in large quantities. It has been shown to be a complex three ring pyrimidine derivative with a carbohydrate side-chain. It is the naturally occurring yellow pigment of milk, hence sometimes called lactoflavin, and is bleached and destroyed by exposure to blue light and by alkaline media. It has a characteristic green fluorescence when dissolved in water, and is converted by strong reducing agents into a colorless form from which it can be easily oxidized again by shaking with air. Riboflavin occurs generally distributed in the body tissues, combined with phosphoric acid and protein as the yellow respiratory enzyme of Warburg, and deficiency in humans has recently been associated with cheilosis, a morbid condition of the lips and corners of the mouth. One unit is equivalent to 2.5 micrograms of riboflavin, and the daily adult requirement is 450 units or 1.1 milligrams of the pure vitamin. Good dietary sources of riboflavin include milk, liver, eggs and green vegetables.

The anti-pellagra or P-P factor of the vitamin B_2 complex has been shown to be nicotinic acid or its amide derivative. The discovery of its efficacy in black tongue of dogs by Elvehjem[2] in 1937 was immediately carried over to clinical practice on pellagra when Spies[3] and others reported striking cures with nicotinic acid or its amide within a very short time following the reports on dogs from the Wisconsin laboratory. Nicotinic acid is now made on a commercial scale. It is a comparatively simple substance, consisting of a single six-membered ring containing nitrogen, which thus makes it a derivative of pyridine. The side chain acid group readily forms the amide by combination with ammonia. The name is derived from its early preparation from nicotine by vigorous oxidation in the laboratory. Nicotine itself is, of course, highly toxic in contrast to its vitamin offspring, and the body is unable to make the conversion to the vitamin that can be accomplished in the test tube. Lean meat, liver, milk, eggs and greens are good natural sources, but corn is deficient in nicotinic acid as compared with such other grains as wheat and rice. This probably accounts for the persistent attempts in the past to link pellagra incidence with spoiled corn. Some authorities feel that 15 to 25 milligrams of nicotinic acid per day are required to protect against pellagra, while 500 milligrams was considered a safe curative daily dose. The presence of combined nicotinamide in certain co-enzymes concerned with tissue oxidation reactions has been definitely established.

Vitamin B_6 is the third important member of the original heat-stable B_2 complex and was termed the rat anti-dermatitis factor. It is now believed necessary for the utilization of unsaturated fatty acids. A detailed procedure for the isolation of the vitamin was published in 1938, its structure was almost immediately found and confirmed by a number of workers, and it was synthesized in 1939 by Harris and Folkers[4], indicating the rapid pace of the vitamin chemistry at the present time. It is a single pyridine ring, like nicotinic acid, but with three substituted alcohol groups instead of the acid side chain. Although thus related, nicotinic acid and B_6 are not interconvertible. Because of its chemical structure, the term pyridoxin has been suggested to replace the older B_6 or adermin (anti-dermatitis vitamin). Good dietary sources include wheat germ, egg yolk, lard and liver, from which the crystalline preparation is now being made in relatively large quantities. Rats when given 3 to 5 micrograms per day are regularly cured of the dermatitis (and acrodynia), and Spies[5] has administered as much as 50 milligrams of synthetic pyridoxin to neuromuscular patients with dramatic results.

The last vitamin of the B complex whose structure is definitely known is panthothenic acid. This has been identified as the active principle in one of the less well defined fractions and is a general growth-promoting substance or bios, the so-called filtrate factor or chick anti-dermatitis vitamin. Recently (1939) the chemical structure of panthothenic acid has been worked out and the substance synthesized by Williams and Weinstock.[6] Its composition shows it to be a peptide-like union of beta-alanine, which is relatively rare, and a six-carbon chain dihydroxy acid. Its stability and widespread distribution in most foods eaten by man suggest there will not likely occur a significant shortage of the vitamin in human dietaries.

VITAMIN C

Vitamin C is the anti-scorbutic substance and though there has been ample evidence for over a century that there was something in fresh fruits which would prevent or cure scurvy in man, it has only been in comparatively recent years that anyone has entertained the idea that this "something" was a definite chemical substance capable of being isolated. The pure principle is now known in crystalline form, and has been made in the laboratory in a series of reactions that start with glucose. It is now available on a commercial scale. The vitamin is ascorbic (or cevitamic) acid, which is the relatively unstable lactone form of an unsaturated six-carbon atom acid. It is related to the simple sugars. One International unit of vitamin C is equivalent to .05 milligrams of ascorbic acid, and the daily adult requirement is 1000 units or 50 milligrams, which corresponds to about 100 c. c. of orange or lemon juice. Other good dietary sources include nearly all the green vegetables. When these are dried or cooked in air, however, much of the vitamin is lost in the liquid or destroyed by oxidation. The vitamin is very sensitive to alkalies and to oxidation, especially with copper catalysis. It is a strong reducing agent and takes part in oxidation-reduction mechanisms in the body tissues in which it is almost universally present. It can be determined in solution by titration with an indophenol dye.

Within recent months newly discovered applications of synthetic vitamins indicate their greater general usefulness. Chemical manipulation of structure by substitution of groups in the naturally-occurring forms of the vitamins has, in some cases, increased the potency of the synthetic compound, and in other cases has altered the physical properties to meet definite demands without materially affecting the biologic activity. It has been suggested that processed foods be restored to their natural potency by inclusion in the refined product of the now commercially available vitamin removed in manufacture. The addition of riboflavin and thiamin to white flour is a case in point. Vitamin A, because of its content in the visual purple of the retina, exerts a beneficial effect on the sight of workers in colors and exact dimensions. Vitamin C, because of its strong reducing activity, prevents rancidity in fatty emulsions like butter and mayonnaise, to which orange juice could not well be added in quantities sufficient to produce the desired result. Vitamin B_1 is being used in infinitesimal concentrations (1 part in 10 billion) for the more luxurious growth of flowers and for crops on irrigated desserts. Further, injection of the pure thiamin has been reported a promising remedy for certain types of nervous tics, and for the alleviation or prevention of serum sickness.

SUMMARY

The important point is that of less than twenty presently known vitamins, at least ten have been synthesized, three within the past two years. This on the one hand has provided proof of their chemical constitution, and on the other has placed powerful agents into the hands of the medical profession.

REFERENCES

1. Funk, C.: On the chemical nature of the substance which cures polyneuritis in birds induced by a diet of polished rice, J. Physiol., 43:395, 1911.
2. Elvehjem, C. A., Madden, R. J., Strong, F. M., and Woolley, D. W.: Relation of nicotinic acid and nicotinic acid amide to canine black tongue, J. Am. Chem. Soc., 59:1767, 1937.
3. Spies, T. D., Cooper, C., and Blakenhorn, M. A.: Use of nicotinic acid in treatment of pellagra, J. A. M. A., 110:622, 1938.
4. Harris, S. A., and Folkers, K.: Synthesis of vitamin B_6, J. Am. Chem. Soc., 61:1245, 1939.
5. Spies, T. D., Bean, W. B., Ashe, W. F.: Note on use of vitamin B_6 in human nutrition, J. A. M. A., 112:2414, 1939.
6. Williams, R. J., Weinstock, H., Rohrman, E., et al.: Panthothenic acid. III. Analysis and determination of constituent groups, J. Am. Chem. Soc., 61:454, 1939.

MEDICAL ASPECTS OF VITAMIN THERAPY

SAMUEL B. NADLER, M. D.[†]
NEW ORLEANS

VITAMIN A

The discovery nine years ago that the reddish plant pigment carotene is converted in the body to vitamin A[1] and the elucidation of the chemical configuration of beta-carotene and vitamin A[2, 3] proved a remarkable forward step in our knowledge of the physiology of vitamin A. Beta-carotene is the most important and widely distributed of the known natural coloring matters which have vitamin A activity. Since the animal organism cannot synthesize vitamin A or carotene it is dependent upon its food supply for these substances. The factors which influence the absorption of vitamin A and carotene from the gastrointestinal tract are therefore worthy of some consideration.

It should be borne in mind that carotenes are hydrocarbons, whereas vitamin A is an alcohol. This difference has a definite bearing on the absorption of these substances from the gastrointestinal tract. Drummond, Bell and Palmer[4] studied the absorption of vitamin A and carotene from the intestinal tract of a patient with a fistula leading from the thoracic duct to the pleural cavity. They showed[1] that if the free alcohol vitamin A is given it is recovered in esterified form, and that nearly all administered vitamin A and only small amounts of the administered carotene may be recovered. These key observations indicate: (1) that absorption of vitamin A may depend on esterification in the intestinal wall. (Naturally occurring vitamin A is in the esterified form whereas in preparations made by saponification the vitamin exists as the alcohol) ; (2) that carotene being a hydrocarbon cannot undergo esterification and is more poorly absorbed.

The administration of liquid petrolatum preparations has a slight effect in reducing the absorption of vitamin A but markedly reduces carotene absorption since the petrolatum competes with solvent action of natural fats.[5] Experimental evidence[6] indicates that rats on fat-free diets assimilate only a small fraction of the carotene absorbed when the diet has 10 per cent fat. It also appears that bile salts play a role in the absorption of carotene.[7] Vitamin A however is apparently fairly well absorbed under the above conditions.

For some unknown reason, both carotene and vitamin A are poorly absorbed during infections.[8] It is not surprising that deficiency of vitamin A in spite of "adequate intake" may occur in a variety of intestinal disorders such as chronic diarrhea, steatorrhea, celiac disease, obstruction of the biliary ducts, pancreatic dysfunction. In such instances carotene absorption may be completely inhibited and assimilation of vitamin A greatly reduced.

Most of the well-known changes due to severe vitamin A deficiency are dependent upon a keratinizing metaplasia of epithelial structures. The earliest evidence of vitamin A deficiency is a functional change, namely a decreased ability for dark adap-

---

[†]From The Department of Medicine, Tulane University School of Medicine, and the Joseph Hume Research Laboratory, Touro Infirmary.

tation. Among the best known disorders, in addition to nutritional night blindness, are xerophthalmia, keratomalacia and a follicular dermatosis.

Tests for loss of adaptation to dim light have been recently introduced as a measure of deficiency of vitamin A. Vitamin A apparently takes part in a cycle of events which occurs when the retina is exposed to light; the rate of reformation of visual purple seems to depend on the available supply of vitamin A.

Hart, Mead and Guilbert[9] have supplied evidence to show that night blindness only ensues when the vitamin A stores of the liver are practically exhausted.

While the methods used to determine dark adaptation are rather tedious and fraught with error, they approximate the accuracy of other biologic methods and serve as crude indicators rather than absolute measures.

In view of the above considerations an amount of vitamin A which will prevent hemeralopia might be regarded as just short of a minimum requirement. Friderichsen and Edmund,[10] Jeans and his coworkers,[11] Jeghers and others[12] indicate that the daily requirement of vitamin A is about 30 units per kilo of body weight per day or about 2000 units per day. Three thousand units per day is probably safer. This requirement can be satisfied by a pint of milk, one egg, one ounce of butter and one serving of green leafy vegetable daily. It appears that the requirement of children and infants is two or three times greater. The Technical Commission of the Health Committee of the League of Nations recommends that all children between the ages of two and 14 should have an additional pint of milk and 3.0 gm. cod liver oil daily.[13] This dietary intake should supply 6000 to 8000 units of vitamin A daily for growing children. Pregnant and nursing women require about 6000 units daily.

The above requirements are physiologic. In disease states the requirement will vary from case to case. The current active correlation of dark adaptation tests and blood carotene and vitamin A levels holds promise of meeting the clinician's needs for estimating the vitamin A requirements in disease states.

Potent vitamin A preparations for parenteral administration are now available and in critical cases may adequately supplement the inefficient oral therapy. More data are needed on the rate of depletion of vitamin A in humans, the efficacy of single large parenteral doses in repleting body stores before accurate therapeusis can be rationally employed. It would appear from Jeghers' work,[12] however, that an assured daily absorption from the gastrointestinal tract or subcutaneous tissues of 10,000 units should replenish body stores and take care of most patients' requirements.

Treatment with vitamin A has also been suggested in disease states which are not primarily dependent upon a vitamin A deficiency, for example, local treatment of skin wounds, thyrotoxicosis, or urinary lithiasis. A consideration of these problems is beyond the scope of this paper.

VITAMIN B COMPLEX

Four of the fractions of the vitamin B complex are now available in crystalline form for therapeutic use. These include thiamin, riboflavin, nicotinic and vitamin B_6. The advent of these pure compounds is serving a twofold purpose. It is calling for a critical re-evaluation of experimental and clinical phenomena associated with deficiency of the various vitamin B fractions, and is supplying the clinician with the means of treating specific deficiencies with pure compounds. It is not unreasonable to assume that a deficiency in one fraction of the vitamin B complex may be associated with a deficiency of other factors of the B complex. Among the legion signs and symptoms attributed to thiamin deficiency is the onset of anorexia and gastrointestinal disturbances. Accordingly, deficiency of thiamin may reduce the intake and absorption of other B factors.

Thiamin forms part of the cocarboxylase system responsible for the oxidation of pyruvic acid—an intermediary in carbohydrate metabolism. In thiamin deficiency, lactic and pyruvic acids are known to accumulate in tissues.[14] Since carbohydrate metabolism supplies most of the energy for nerve and muscle metabolism, thiamin deficiency causes a biochemical block which is probably as effective as a partial anoxia. In muscle this may produce pain entirely like that caused by ischemia. Thiamin deficiency in animals presumably produces a similar block in all tissues, but the symptoms are most striking in the central nervous system. Incoordination and opisthotonus are produced in a matter of days. These manifestations occur without peripheral neuritis and have been erroneously labeled polyneuritis. Their striking relief by thiamin administration has allowed clinicians to assume that thiamin is the anti-neuritic vitamin. Actually there is no proof at present that thiamin deficiency alone produces the anatomic changes of the true peripheral neuritis in animals; in addition, there is no proof that it will cure a true peripheral neuritis induced by nutritional deficiency due to insufficiency of factors other than thiamin.

Human beriberi is a symptom complex involving cardiovascular phenomena, muscular symptoms, central nervous system, and peripheral nerve symptoms. It is generally agreed that thiamin will rapidly correct cardiovascular,[15] muscular and acute central nervous system manifestations. Relief is striking and rapid—suggestive of correction of a functional rather than an organic disorder (remedying the faulty carbohydrate metabolism). In mild cases of nutritional deficiency the muscle pain, tenderness and weakness may predominate the picture. Their presence is not to be confused with a true polyneuritis involving organic changes in peripheral nerves. The evidence that nutritional peripheral neuritis may be due to other factors than thiamin deficiency alone is weighty. Peripheral neuritis has been produced on diets adequate in thiamin, but lacking in other factors of the B complex.[16] Peripheral neuritis has been produced by vitamin A deficiency.[17] Diets low in vitamin B_1 are low in other factors of the vitamin B complex. Deficiency of thiamin is accompanied by nausea and gastrointestinal disturbances which mitigate against adequate intake and absorption of other vitamin B factors. The clinical conditions of pregnancy, alcoholism and gastrointestinal disturbances which give rise to thiamin deficiency, also give rise to deficiency of other vitamins. Controlled observations on thiamin therapy in peripheral neuritis fail to give conclusive objective evidence of amelioration of the neuritis unless other factors are included in the diet. Most clinical reports purporting to show clinical improvement of the neuritis with thiamin are based upon observations showing relief of muscle pain and weakness associated with polyneuritis. There is little or no clear cut evidence to show regression of the objective symptoms when thiamin alone is used. The fact remains that thiamin does not fill the role required for the antineuritic vitamin. It is not unlikely that nutritional peripheral neuritis is a multiple vitamin deficiency involving several factors of which thiamin is one. Meiklejohn has recently published a fascinating analysis of the evidence for and against this view;[18] the following is an abstract of that evidence.

"The polyneuritis associated with alcoholism, pregnancy and gastrointestinal disturbances is unquestionably due to nutritional deficiency, and it is in every way similar to the polyneuritis of Oriental beriberi. It has not been demonstrated that this polyneuritis is due to deficiency of thiamin alone. For this reason it is of paramount importance that the treatment of nutritional polyneuritis should include an ample and nutritious diet together with the administration of potent sources of the vitamin B complex, including such substances as yeast and liver extract. Additional thiamin is of value in the relief of the cardiovascular disturbances and muscular symptoms which may accompany the nutritional polyneuritis."

Two years ago Sebrell and Butler[19] first described the characteristics of riboflavin deficiency in man. Since then, Spies and his co-workers[20] have reported forty patients with similar lesions, mostly endemic pellagrins. The lesions characteristic of riboflavin deficiency consist of skin and mucous membrane lesions. The skin lesions are filiform excrescences showing a fine, greasy, scaly desquamation. These excrescences may be found chiefly at the nasolabial folds, at the angles of the mouth, at the alae nasi, and on the forehead. Lesions at the angle of the mouth are usually symmetrical and bilateral and extend laterally and inward on the mucous surface of the mouth. They are shallow and show no increased redness.

Pure riboflavin deficiency is a rare occurrence. Riboflavin deficiency occurs in patients who have a deficiency of one or more factors of the vitamin B complex. Treatment may be started with the administration of pure riboflavin in doses of 15 mg. daily for three days, followed by a maintenance level of 10 mg. daily for a few more days. Complete healing of lesions should be noted within 48 to 72 hours after the administration of adequate therapy.[21] It is advisable to maintain the patient on one or two milligrams of riboflavin daily for several weeks, and when the diet is adequate therapy may be discontinued.

The signs and symptoms of nicotinic acid deficiency have been adequately described by Spies, et al.[20, 22] These symptoms include involvement of several systems: (1) Gastrointestinal lesions, including (a) oral lesions —scarlet red stomatitis, glossitis, ulcerations on the floor of the mouth, (b) inflammation of all mucous membranes and the incidence of severe diarrhea; (2) skin lesions, consisting of a characteristic bilateral symmetrical dermatitis, and (3) mental changes, which may be severe and acute, comprising the nicotinic acid deficiency encephalopathy described by Jolliffe,[23] or mild and chronic. It should be understood that the symptoms of nicotinic acid deficiency may occur alone or in any possible combination of systems. Patients showing primarily mental changes before the skin and gastrointestinal changes might easily be labeled as psychoneurotic. Similarly a stomatitis caused by nicotinic acid deficiency with secondary involvement by Vincent's infection may have the diagnosis obscured by the superimposed infection.[24]

The role of vitamin B_6 in human nutrition is still obscure. There is evidence that it may be of some importance.[25]

Marked deficiency of vitamin B complex factors is evidenced in pellagra. When the deficiencies are associated with gastrointestinal lesions it is not unreasonable to include in the therapy rather large doses of all of the B vitamins. During acute phases of gastrointestinal disturbances liquids should be resorted to, chiefly milk, beef juice and broth. With continued improvement of the gastrointestinal tract under the influence of the B vitamins, the diet should rapidly be stepped up to a full diet. Of prime importance for inclusion in the diet are milk, yeast, ground liver, pureed vegetables, thin whole grain cereals and fruit juices, administered orally in hourly feedings or through a nasal catheter if necessary. Supplementary vitamin preparations should include about 50,000 International units of vitamin A daily, 200 to 500 mg. of vitamin C (depending upon the vitamin C requirements), and a rich source of vitamin B complex; 30 to 60 grams of brewers' yeast daily is a splendid source of vitamin B complex as is 30 grams of aqueous liver extract. It should be clear that the administration of pure vitamin fractions of the B complex should be restricted for specific syndromes occasioned by their absence. For this purpose acute circulatory manifestations of vitamin B_1 deficiency may be treated with immense doses of thiamin hydrochloride, 500 to 1000 mg. intravenously and intramuscularly during the first 24 hours and from 200 to 500 mg. daily intramuscularly in two doses daily for a week. Following this the thiamin may be reduced to about 10 mg. daily until convalescence is well established. Riboflavin should be given in doses of 10 to 20 mg. daily by mouth during the acute phases and later reduced as indicated. In nicotinic acid specific deficiency, 100 mg. daily for ten days should be adequate, and in cases of encephalopathy due to nicotinic acid deficiency 200 mg. of sodium nicotinate may be administered parenterally. It should be remembered however, that in mild cases of pellagra, dietary adjustment is all that may be necessary.

VITAMIN C

The volume of literature recently written on vitamin C has assumed gigantic proportions. The advent of relatively easy methods for the estimation of vitamin C in food sources, body fluids and excreta has greatly stimulated work in this field and fairly complete data are now available.

Wright and Ludden[26] have supplied methods which test the ability of the patient to absorb orally administered vitamin C and indicate the saturation of the body stores with vitamin C. Such methods are fundamental requirements for adequate treatment of patients with a variety of diseases influencing absorption and utilization of vitamin C.

Vitamin C deficiency may occur under a variety of conditions even when the intake is apparently adequate. The clinical indications for administration of vitamin C are extant when scurvy or subclinical scurvy is present, or even where the physician may anticipate danger of a deficiency of this substance whatever the complicating circumstances may be. A determination of the saturation index is the best method of estimating the efficiency of vitamin C intake and therapy. While of considerable value, single blood estimations for vitamin C may give an erroneous picture of the body stores for this level is affected by the vitamin C intake of the previous 24 to 48 hours and upon renal retention of vitamin C.

The normal daily requirement for vitamin C is 30 to 60 mg., an amount contained in 100 c. c. fresh orange juice. This requirement is greatly increased in infectious diseases with or without fever,[27, 28, 29] any protracted diarrhea, achlorhydria, or ulcer diets. In fact, the oral requirement may be as high as 1000 mg. daily to maintain saturation of body stores.[26] Saturation of the body stores of a depleted patient requires about 15 grams given over three to five days in divided doses, followed by 100 to 200 mg. daily by oral or parenteral route. These huge doses may be given orally as citrus fruits. In the event of uncertainty as to absorption the parenteral route is safest.

The phenomena associated with vitamin C deficiency are almost entirely dependent upon rupture of blood vessels. For this reason, and the fact that it appears early, the capillary fragility test of Gothlin is widely used as an indicator of vitamin C deficiency. It should be remembered that numerous other conditions affect the fragility of capillaries. The test is of some value however, for if capillary fragility is caused by vitamin C deficiency, the fragility will disappear very promptly upon the administration of adequate amounts of vitamin C.

With obvious evidence of the presence of a vitamin C deficiency and lacking the facilities for study of the status of vitamin C metabolism, saturation with the vitamin and maintenance of adequate intake should be undertaken.

VITAMIN D

The medical therapeutics of vitamin D resolve themselves into prevention and treatment of rickets and treatment of parathyroid tetany. Of the numerous vitamin D preparations, three are of clinical importance: calciferol, dihydrotachysterol (A. T. 10) and 7-dehydrocholesterol.

Calciferol (viosterol, vitamin D_2) is derived from irradiation of the plant sterol ergosterol. Dihydrotachysterol is a derivative from the same source; 7-dehydrocholesterol (vitamin D_3) is derived from the irradiation of the animal sterol cholesterol or by the action of ultraviolet light on the cholesterol in skin.

For the prevention of rickets and infantile tetany in the average case the dose of 200 to 400 units daily is gradually raised from the third week to about 1200 units daily by the third month, and maintained at that level for the first year. It may be reduced to 800 units daily during the second year. In prematures and susceptible infants the dose required to prevent rickets may be as high as 30,000 units daily. The best check on the possible appearance of rickets is a routine x-ray study of the radius and ulna and estimations of the serum levels of calcium and phosphorus.

For the cure of rickets, doses from 2000 to 60,000 units may be needed. The criteria of cure are a rise in the inorganic phosphorus and x-ray changes showing progressive calcium deposition (three weeks if therapy is adequate). In cases of infantile tetany the same rules hold as for rickets and it is best to supplement the vitamin D with about 1 gram four times a day of calcium chloride to prevent the drop of serum calcium which sometimes ensues when vitamin D therapy is started.

In the treatment of refractory rickets immense doses may be required, as much as 1,000,000 units daily.[30] Albright states that 150,000 units may be needed to maintain a normal state. Most cases however yield to doses of 50,000 to 60,000 units per day. It is obvious from the above that a wide range of dosage is employed and pure preparations of high potency are of importance from the standpoint of ease of administration. Cod liver oil contains only 100 units per gram or 400 to the teaspoonful. For small intakes it is adequate. Viosterol however contains about 10,000 units per gram and acts as a splendid supplement. There appears to be no significant difference in efficacy between animal and plant vitamin D.[31]

The recent preparation of pure vitamin D products has made it possible to use much higher doses with comparative safety. Formerly toxic effects, for example metastatic calcification, were obtained with mixtures of irradiation products marketed as vigantol. Furthermore these researches have yielded dehydrotachysterol which is proving of tremendous value in the control of hypoparathyroid tetany. Less than 1 c. c. daily of this preparation has rendered obsolete the former measures employing large doses of calcium, parathyroid hormone, intravenous medication and the use of acidifying salts. The product should not be used however, without adequate serial observations on the serum calcium level.

While Harnapp's[32] single massive dose method (600,000 units) for the prevention and control of rickets has met with favor in Europe, it has scarcely been adopted by American clinicians. The prophylactic effect is said to last for several months and to be free from danger.

When large doses of vitamin D are employed care must be taken to guard against toxic effects. Toxic effects should not appear when the rickets show no sign of healing. Anorexia, nausea, pallor, lassitude—symptoms suggestive of hypercalcemia may be noted. Poisoning without hypercalcemia may occur.

REFERENCES

1. Moore, T.: Vitamin A and carotene: VI. The conversion of carotene to vitamin A in vivo, Biochem. J., 24:696, 1930.

2. Karrer, P., Helfenstein, A., Wehrli, H., and Wettstein, A.: Pflanzenfarbstoffe; XXV. Über die Konstitution des Lycopens und Carotins, Helv. chim. Acta, 13:1084, 1930.

3. Karrer, P., Monf, R., and Schopp, K.: Zur Kenntnis des Vitamins A aus Fischtränen II, Helv. chem. Acta, 14:1431, 1931.

4. Drummond, J. C., Bell, M. E., and Palmer, E. T.: Observation on the absorption of carotene and vitamin A, Brit. M. J., 1:1208, 1935.

5. Rowntree, J. I.: The effect of the use of mineral oil upon the absorption of vitamin A, J. Nutrition, 3:345, 1931.

6. Ahmad, B.: The fate of carotene after absorption in the animal organism, Biochem. J., 25:1195, 1931.

7. Greaves, J. D., and Schmidt, C. L. A.: On the absorption and utilization of carotene and vitamin A in choledochocolonostomized vitamin A deficient rats., Am. J. Physiol., 111:492, 1935.

8. Clausen, S. W.: Limits of the anti-infective value of provitamin A (carotene), J. A. M. A., 101:1384, 1933.

Heyman, W.: Absorption of carotene, Am. J. Dis. Child., 51:273, 1936.

9. Hart, G. H., Mead, S. W., and Guilbert, H. R.: Vitamin A deficiency in cattle under natural conditions, Proc. Soc. Exper. Biol. & Med., 30:1230, 1933.

Guilbert, H. R., and Hart, G. H.: Minimum vitamin A requirements with particular reference to cattle, J. Nutrition, 10:409, 1935.

Guilbert, H. R., Miller R. F., and Hughes, E. H.: The minimum vitamin A and carotene requirements of cattle, sheep and swine, J. Nutrition, 13:543, 1937.

10. Friderichsen, C., and Edmund, C.: Studies of hypovitaminosis A: II. A new method for testing the resorption of vitamin A from medicaments, Am. J. Dis. Child., 53:89, 1937. III. Clinical experiments in the vitamin A balance in children after various diets, Am. J. Dis. Child., 53:1179, 1937.

11. Jeans, P. C., Blanchard, E., and Zentmire, Z.: Dark adaptation and vitamin A, J. A. M. A., 108:451, 1937.

12. Jeghers, H.: The degree and prevalence of vitamin A deficiency in adults, J. A. M. A., 109:756, 1937.

Maitra, M. K., and Harris, L. J.: Vitamin A deficiency among school children in London and Cambridge, Lancet, 2:1009, 1937.

Corlette, M. B., Youmans, J. B., Frank, H., and Corlette, M. G.: Photometric studies of visual adaptation in relation to mild vitamin A deficiency in adults, Am. J. M. Sci., 195:54, 1938.

13. League of Nations, Health Organization: Report on Physiological Bases of Nutrition, Geneva, 1935.

14. Peters, R. A.: The biochemical lesion in vitamin B_1 deficiency: application of modern biochemical analysis in its diagnosis, Lancet, 1:1161, 1936.

15. Weiss, S., and Wilkins, R. W.: The nature of the cardiovascular disturbances in nutritional deficiency states (beriberi), Ann. Int. Med., 11:104, 1937.

16. Zimmerman, H. M., and Cowgill, G. R.: Neurologic manifestations in vitamin G (B_2) deficiency: experimental study in dogs, Arch. Neurol. & Psychiat., 37:286, 1937.

17. Mellanby, E.: Lesions of the central and peripheral nervous systems produced in young rabbits by vitamin A deficiency and a high cereal intake, Brain, 58:141, 1935.

18. Meikeljohn, A. P.: Is thiamin the antineuritic vitamin? New England J. Med., 223:265, 1940.

19. Sebrell, W. H., and Butler, R. E.: Riboflavin deficiency in man: a preliminary note, Pub. Health Rep., 53:2282, 1938.

20. Spies, T. D., Vilter, R. W., and Ashe, W. F.: Pellagra, beriberi and riboflavin deficiency in human beings; diagnosis and treatment, J. A. M. A., 113:931, 1939.

21. Sydenstricker, W. P., Geeslin, L. E., Templeton, C. M., and Weaver, J. W.: Riboflavin deficiency in human subjects, J. A. M. A., 113:1697, 1939.

22. Spies, T. D., Aring, C. D., Gelperin, J., and Bean, W. B.: The mental symptoms of pellagra: their relief with nicotinic acid, Am. J. M. Sci., 196:461, 1938.

23. Jollife, N., Bowman, K. M., Rosenblum, L. A., and Fein, H. D.: Nicotinic acid deficiency encephalopathy, J. A. M. A., 114:307, 1940.

Jolliffe, N.: Effects of vitamin deficiency on mental and emotional processes, Rec. Publ. Ass. Nerv. Mental Dis., 19:144, 1939.

24. Jolliffe, N.: Recent advances in the therapeutic use of the B vitamins, Med. Clin. N. Am., 24:733, 1940.

25. Spies, T. D., Bean, W. B., and Ashe, W. F.: A note on the use of vitamin B_6 in human nutrition, J. A. M. A., 112:2414, 1939.

Kark, R., Lozner, E. L., and Meiklejohn, A. P.: Negative effect of synthetic vitamin B_6 hydrochloride in nutritional deficiency in man, Proc. Soc. Exper. Biol. & Med., 43:97, 1940.

Antopol, W., and Schotland, C. E.: The use of vitamin B_6 in pseudo-hypertrophic muscular dystrophy, J. A. M. A., 114:1058, 1940.

26. Wright, I. S., and Ludden, J. B.: Treatment with vitamin C, Med. Clin. N. Am., 24:743, 1940.

27. Harde, E., Rothstein, J. A., and Ratish, H. D.: Urinary excretion of vitamin C in pneumonia, Proc. Soc. Exper. Biol. & Med., 32:1088, 1935.

28. Ornerod, M. J., and Von Kauf, B. M.: Further reports on ascorbic acid treatment of whooping cough, Canad. Med. Assoc. J., 37:268, 1937.

29. Abbasy, M. A., Harris, L. J., and Graybill, N.: Vitamin C and infection, Lancet, 1:177, 1937.

30. Albright, F., Butler, A. M., and Bloomberg, E.: Rickets resistant to vitamin D Therapy, Am. J. Dis. Child., 54:529, 1937.

31. McCune, D. C.: Recent advances in the clinical use of vitamin D and related compounds, Med. Clin, N. Amer., 24:729, 1940.

32. Harnapp, G. O.: Rachitisbehandlung durch einmalige Verabfolgung von Vitamin D_2, Machr. f. Kinderb. 66:318, 1936.

THE SIGNIFICANCE OF VITAMINS IN SURGERY

MICHAEL DeBAKEY, M. D.†
AND
MARVIN C. SMITH, M. D.†
New Orleans

That surgical entities are frequently accompanied by vitamin deficiencies is well appreciated by most surgeons. An immense field of therapy is becoming exposed due to intense experimental and clinical studies with the use of vitamins. In the light of investigative work, specific deficiency states are for the first time being recognized and dramatically corrected with the use of synthetic vitamin preparations.

It is in the detection of subclinical avitaminosis that difficulty is frequently encountered, for there is a wide margin between the onset of a deficiency and the beginning of characteristic symptoms. Irreparable damage may ensue if deficiencies are allowed to progress.

Each patient must be individualized with regard to supportive vitamin therapy with either surgical or medical management. Ideal therapeutic care does not consist in the use of all inclusive vitamin mixtures nor in the indiscriminate use of the vitamins, but rather in the recognition of specific avitaminosis, either through the means of laboratory facilities or of careful clinical study, followed by properly indicated therapy.

The diet of the healthy individual should be well rounded with thoughtful planning of meals to include foods rich in vitamins. The diet of the postoperative patient should be supplemented with those vitamins which will aid recovery. Occasionally patients have such impairment of bodily functions that proper absorption and utilization of vitamins provided in the diet is interfered with. In such instances most vitamins can be administered parenterally until the body is able once again to assimilate an adequate diet.

VITAMIN A

Whereas most diseases attributable to vitamin A deficiency have little direct surgical significance, there are certain functional disturbances resulting from such a deficiency which indirectly are of surgical importance. Of these, the most significant are the pathologic changes occurring in epithelial tissue, the susceptibility to infection, and the relationship to thyroid function.

---

†From the Department of Surgery, School of Medicine, Tulane University, New Orleans, Louisiana.

It has been clearly demonstrated that the most pathognomonic pathologic features of vitamin A deficiency occur in epithelial structures. These consist primarily of epithelial atrophy followed by reparative proliferation of the basal cells and eventual replacement by stratified keratinizing epithelium. In some instances this process resembles a true metaplasia and involves many epithelial lined structures, such as the respiratory tract, salivary glands, genitourinary tract, the eyes and para-ocular glands, the glands of the gastrointestinal tract, and the pancreas. This process of continuous desquamation of epithelial cells may lead to the plugging of ducts and bronchi. The more serious consequences of such lesions are believed to be bronchial occlusion, atelectasis, and pneumonia. This process has been considered responsible for the frequency and severity of pneumonia in infants deficient in vitamin A. Accordingly, the surgical significance of vitamin A lies in its possible importance as a factor in postoperative pulmonary complications. Of further significance in this regard is the possible role of vitamin A in the resistance to upper respiratory infections. Conflicting reports have appeared concerning the value of this vitamin in the prophylaxis of colds. In this connection, the Council on Pharmacy and Chemistry recently concluded that whereas: "Vitamin A is an aid toward the establishing of resistance of the body to infections in general, it certainly has not been shown to be specific in the prevention of colds, influenza, and such infections." (New and Nonofficial Remedies, A. M. A., Chicago, 1939, p. 484). Two observers[1, 2] have directed attention to the anti-infective properties of vitamin A. It would appear that severe deficiency of vitamin A lowers resistance to infection in general. However, in such poor nutritional states, other factors are involved which may be just as important and the conflicting reports at the present time certainly do not justify considering vitamin A an anti-infective vitamin.

Numerous investigators[1-4] have directed attention to the significance of vitamin A in the treatment of superficial wounds, burns, and ulcers. It has been observed that the treatment of such lesions with cod liver oil dressing stimulates healthy granulation and epithelialization and reduces the infection, whereas similar vitamin-free oils do not produce the same response. Because of these observations, the beneficial effects have been attributed to the vitamin A and D contained in the cod liver oil. Excellent results have been reported in the treatment of burns and infected wounds with ointment containing a high vitamin A content. These beneficial effects have been ascribed partly to a bactericidal influence of the preparation employed, and partly to a stimulation of growth of epithelium. The treatment of acute and chronic osteomyelitis by means of local application of cod liver oil ointment and plaster bandages has been advocated by Löhr[5, 6] as well as the treatment of chronic arthritis by means of injection of cod liver oil into the joint spaces. Others[7] have advocated solutions of carotene in oil for the local treatment of ulcerative colitis. Controlled experimental observations[8] in the use of this form of therapy are somewhat conflicting as regards their value.

It has been shown that there exists an antagonistic action between thyroxine and vitamin A.[9-11] Experimentally it has been demonstrated that the administration of large doses of carotene will prevent the symptoms of hyperthyroidism.[9-14] Moreover, the symptoms of hypervitaminosis produced by unusually large doses of vitamin A could be prevented by the administration of thyroxine. On this basis, it has been suggested that patients with hyperthyroidism might be benefited by the administration of vitamin A. However, Clausen[15] in a recent clinical analysis of these observations concludes that whereas it is reasonable to assume that vitamin A may be more rapidly destroyed in any state in which the metabolic rate is increased, as, for example, in hyperthyroidism, it is difficult to understand how vitamin A can decrease the activity of thyroxine. Further investigations are necessary before the significance of vitamin A as a therapeutic agent in hyperthyroidism can be accepted.

Because experimentally[16, 17] it has been shown that renal and ureteral calculi can be produced in animals by feeding a diet deficient in vitamin A, it has been assumed that deficiency of this vitamin may be a factor in the production of urinary stones. On this basis, Higgins[16] has recommended the treatment of urinary stones in man by acid ash diet and vitamin A. Other investigators,[18, 19] however, have not been able to show that in man the feeding of such special diets is of value in the treatment of urinary stones. At present, the majority of investigators are of the opinion that other factors are perhaps more important.

The daily requirements of vitamin A are not definitely known but it is generally believed that in adults a safe dose should be about 3,000 to 4,000 International units daily. Of particular interest to the surgeon are conditions which cause increased need or interfere with the intake or absorption of this vitamin. Thus, for example, tuberculosis and hyperthyroidism require an increased intake of vitamin A. In any condition in which the bile is excluded from the intestinal tract, the intake or utilization of carotene or vitamin A is disturbed. Mineral oil also interferes with the absorption of carotene and should not be employed in the presence of vitamin A deficiency.

VITAMIN B

A deficiency of a single component of the vitamin B complex is unusual. When there are symptoms relative to the lack of one factor careful study will reveal evidence of another deficiency. Symptoms of avitaminosis B, such as anorexia, constipation or diarrhea, loss of appetite and weight will occur when the intake or absorption of the vitamin complex is interfered with by lesions of the gastrointestinal tract. Pyloric stenosis, achlorhydria, ulcerative colitis, gastrointestinal carcinoma are conditions which are frequently accompanied or complicated by vitamin B deficiency. In celiac disease, scurvy, carcinoma and ulcer of the stomach, and following gastrectomy, Sinclair[20] has found through quantitative analysis a low vitamin B_1 level. That the reserve of this vitamin is small is suggested by the rapid onset of symptoms when the body is deprived of vitamin B for one reason or another.

The disease resulting from deficiencies of the various components of the complex are not surgical but their manifestations may complicate the picture of a surgical entity. Confusion in diagnosis may arise when vitamin B deficiency results in symptoms which simulate those of surgical lesions of the gastrointestinal tract such as abdominal cramps, diarrhea, nausea and vomiting. Sure and Thatcher[21] found that rats on vitamin B_1 deficient diets develop gastric ulcers in a large percentage of cases but Cowgill[22] believes that inasmuch as the ulcers did not occur in every case the pathology was not due to a specific relation of vitamin B_1 to the stomach.

Cowgill and his co-workers[23] have shown a direct relationship of vitamin B to metabolism. When the basal metabolic rate is increased the need for the vitamin, especially B_1, is also increased and when this demand is great, additional vitamin must be consumed in large amounts to prevent symptoms of a deficiency from occurring. The demand for the vitamin is also increased in the presence of severe infections for the same reason.

Vitamin B_1 deficiency in man may result in tachycardia, palpitation and lowered exercise tolerance. Therefore, an abnormal cardiac state in thyrotoxicosis would be exaggerated by a B_1 deficiency.[24] It is only in the vitamin B_1 deficient patient that the administration of this factor has any beneficial effect on abnormal cardiac function.

Drill[25] observed that loss of weight in hyperthyroid rats was checked by the administration of vitamin B_1 supplemented to the diet but did not gain weight until the entire B complex was added. When anorexia and loss of weight occurred in animals in experimental hyperthyroidism, Hinwich, Goldfarb, and Cowgill[26] observed that the administration of vitamin B_1 brought about a normal appetite and an increase in weight. In experimental investigations with rats given thyroxin, the toxic manifestations were entirely corrected by the administration of very large doses of crystalline vitamin B_1. The antithyrogenic action was more efficacious if vitamin B complex was used.[27] Frazier and Ravdin[24] believe that gastrointestinal symptoms in vitamin B_1 deficiency and in thyrotoxicosis may be comparable and a B_1 deficiency may attribute to the intensification of thyrotoxicosis. They state that hyperglycemia, decreased glucose tolerance, and depletion of liver glycogen are characteristic manifestations of disturbed carbohydrate metabolism in hyperthyroidism and that this picture is similar to that in a patient with avitaminosis B_1 when the amount of carbohydrate in the diet is very high. In both instances vitamin B_1 must be added in large amounts to the diet to aid in the deposition of glycogen. These authors reported the results obtained after the use of the vitamin B complex in fifty hyperthyroid patients. They consisted essentially in a reduction of the pulse rate preoperatively, a gain of weight, an increase of appetite and a general diminution in the length of the preoperative period. Twenty-eight patients with hyperthyroidism not taking the vitamin B complex served as controls. In this series of cases the vitamin complex had no effect on the basal metabolic rate. Vitamin therapy is of greater necessity in patients with marked toxicity than in those in a moderate state since it is in the former group that avitaminosis is more likely to occur. The authors concluded that adequate amounts of this vitamin are indicated in hyperthyroidism even though vitamin B_1 has no direct antithyrogenic action.

With regard to preoperative preparation the detection and correction of vitamin B deficiency is important in decreasing complications following surgery. Considerable experimental studies have been conducted in order to determine the amount of vitamin B that constitutes a daily minimal intake. The average normal diet is sufficient in vitamin B. The minimal daily requirement of vitamin B_1 is, of course, based upon the weight of the individual and caloric intake (Cowgill[28]) and this is approximately 350 International units per day. However, in the presence of disease in the gastrointestinal tract or in conditions accompanied by an increased basal metabolic rate, the amount of vitamin B needed to prevent symptoms of deficiency is much greater than that required by a normal healthy person. Accordingly, the dosage must depend upon individual requirements. However, large doses are well tolerated and are without contraindications.

VITAMIN C

Vitamin C is not only to be used in the treatment of scurvy but has practical value in the pre- and postoperative treatment of patients having a low vitamin C reserve without manifesting objective symptoms of the deficiency.

In certain conditions in which the metabolic rate is increased such as hyperthyroidism, infections and other febrile diseases and following operations there is an actual increased demand for ascorbic acid. Usually, however, a deficiency in the surgical patient is the result of inadequate intake or faulty absorption of the vitamin. Illustrations of this may be found in patients on inadequate supportive diets as those on prolonged dietary ulcer regimens, in patients requiring intravenous therapy for long periods with exclusion of oral feedings, in patients suffering from prolonged vomiting, obstructive lesions or external fistulae of the gastrointestinal tract, hypermotility of the small intestine, gastric or duodenal ulcers, and gastrointestinal carcinoma, and lesions of the lower bowel resulting in diarrheal states. Kendall and Chinn[29] demonstrated that certain bacteria in the stomach and intestines of patients with achlorhydria destroy ascorbic acid but that this destruction is definitely postponed by even small amounts of dextrose, which is utilized in preference to ascorbic acid.[30]

In active tuberculosis there is diminished excretion of vitamin C and the degree of excretion roughly parallels the extent and activity of the tuberculous involvement. Large daily doses of ascorbic acid are required to replenish the reserve and keep it at a normal level. Administration of sufficient quantities apparently does not affect the prognosis of the disease. At least 100 mg. of vitamin C daily are necessary to establish a normal blood vitamin C level in the patient with active tuberculosis, whereas one fifth of the amount is all that is required by the normal individual.

A deficiency of vitamin C accompanies osteomyelitis. Abbasy, Harris, and Hill,[31] investigating cases of osteomyelitis, came to the conclusion that in common with other infective conditions, osteomyelitis causes a diminished rate of excretion of vitamin C in the urine and a lowered response to the test dose, indicative of an apparently increased usage of the vitamin during the infectious process. Partially healed cases showed moderately low levels, whereas healed cases had normal levels.

Although the vitamin C reserve may be low in a patient, the deficiency may not be easily recognized because he may remain in an asymptomatic state. Vitamin C determinations may not give a definite indication of the patient's reserve, neither will random determinations indicate saturation.[32] In patients suspected of having a vitamin C deficiency several periodic determinations should be made. The significance of this fact may be demonstrated by the observations of Wolfer and Hoebel.[33] These investigators reported that patients with normal vitamin C blood levels may develop low blood levels following operative procedures, infection or deprivation of vitamin C intake for several days but will respond quickly to administration of synthetic or naturally occurring vitamin C and maintain the normal level on moderate doses. On the other hand, patients with subnormal vitamin C blood levels show sudden elevation following the administration of ascorbic acid but do not maintain this level unless the excessive intake is continued.

The level of vitamin C is more significant when determinations are carried out on blood samples. Abnormally slow excretion of vitamin C in the urine does not necessarily indicate low bodily content if renal function is decreased because renal damage retards excretion even when no deficit of vitamin C exists.[34] There is no constant renal threshold for vitamin C. Excretion of the vitamin by way of the feces is negligible except in hypermotility of the small intestines.

It is important to recognize that nearly half of all patients coming to surgery in free clinics are deficient in vitamin C to a marked degree, and may be in a state of actual or subclinical scurvy. Holman[39] has observed that 44 per cent of free clinic patients, who usually fall in the low income group, are on diets poor in vitamin C and in the series of seventy patients reported, seven were on the borderline of scurvy. All patients above 70 years of age showed a relative deficiency.

Vitamin C deficiency in man, even when it is partial, may be a causative factor in cases of wound disruption.[35] Although Wolfer and Hoebel are of the opinion that there is no absolute proof of the relation of vitamin C deficiency to non-union of wounds in humans, there is considerable evidence to give strong support to this theory. Lanman and Ingalls[36] conducted experiments with guinea pigs on normal and vitamin C deficient diets and found both histologically and physiologically that the healing of operative incisions in vitamin C deficient animals was inferior to the group of control animals. In the scorbutic animals histologic examination showed defective repair of the corium and poor production of collagen in the scar. Vitamin C is necessary for the formation of all intercellular substances having collagen as their basis. A deficiency does not interfere with the growth of cells but it does prevent the formation of structural connective tissue.[38] Vitamin C deficiency does not play the only role in wound healing, but asymptomatic scurvy undoubtedly has an important bearing on wound healing and is more frequent than is generally recognized.

Land[37] made plasma vitamin C determinations before and after operations on forty-three patients. In nearly every case there was a prompt fall after operation from the original level. In a few cases the level did not begin to rise until four to five days. The author states that a low vitamin C level immediately postoperatively is probably of less significance than a low level preoperatively. A further drop of the vitamin C level postoperatively may be the result of prolonged intravenous therapy without food by mouth, abnormal bowel function, or increased utilization of vitamin C.

Deficiency of vitamin C may be corrected by a diet rich in this vitamin or by the administration of synthetic preparations orally or intravenously.[38] When the blood level remains relatively constant and the urinary excretion is high, saturation is complete. There is no contraindication to large doses of the synthetic product. Preoperatively deficient patients should receive a gram a day and postoperatively a maintenance dose of 300 to 500 mg. per day until the convalescent period is concluded and the patient is once more on a well balanced diet.

VITAMIN D

Experimental evidence does not confirm that the administration of vitamin D in large amounts hastens the healing of fractures where no deficiency of the vitamin exists.[40] However, following fractures in patients on vitamin D deficient diets there is clinical evidence in support of this theory. Attention has been called to the increase in fractures among children during the World War in those vicinities where diets were inadequate and of the relative decrease in the number of fractures when children in these areas were able to obtain sufficient amount of vitamin D in their diets.[4] Compere et al.[42] have shown experimentally that vitamin D deficiency in growing rats if continued long enough to produce active rickets may cause delayed healing or nonunion of fractures. The addition of vitamin D to the diet was found to prevent or to heal rickets and to bring about a more rapid and better healing of the fractures. It was observed by the authors that the administration of vitamin D to elderly patients greatly aided healing of fractures but no effect in the healing properties was noted when the vitamin was given to younger patients with fractures. If patients with fractures are not suffering from acute or chronic vitamin D deficiency, the administration of vitamin D contents may not only delay healing of the fractures but also bring about permanent degenerative changes.

One of the occasional complications of thyroidectomy is parathyroid tetany and the use of vitamin D plus parathormone in this instance is followed with gratifying results. This vitamin allows better absorption of calcium in the diet. In large doses vitamin D may simulate parathormone activity. The means by which the blood calcium is raised in the administration of vitamin D and parathormone is quite different in that the former increases absorption of calcium in the intestines and the latter withdraws calcium from the bones. Parathormone toxicity consists of decalcification, whereas the toxic effect of vitamin D is hypercalcification.[43]

Many clinicians[44-47] have made use of vitamin oils containing vitamin D for the stimulation of wound healing. By this method infection seems to be decreased and the rate of healing increased. Puestow, Poncher, and Hammott[44] in an experimental study on the treatment of burns in rabbits and pigs, showed that in wounds treated with various amounts of vitamin A and D oils, tannic acid, and vitamin free oils, the healing period was shortened by 25 per cent when cod liver oil was used. Vitamin free oil did not increase the healing time. Healing of large burns treated with the vitamin oils was much more rapid than the healing of small burns treated with tannic acid. Vitamin D was used in different amounts both with and without vitamin A and the healing was accelerated. Vitamin D had a definite stimulating effect on epithelialization but excessive doses of this vitamin may produce extreme toxicity and pathologic changes. Löhr[45] has made a great deal of use of cod liver oil dressings in the treatment of burns and other wounds and states that cod liver oil is self sterilizing and that it diminishes the degree of infection in burns and controls secondary infection when present. He attributes this action of the cod liver oil to vitamins A and D.

Weld[48] has reported the favorable use of vitamin D in moderate doses or of irradiation in decreasing capillary permeability when it is abnormal. McNealy, Shapiro, and Melnick[49] have had beneficial results with the use of large doses of vitamin D in checking the bleeding tendency in obstructive jaundice.

The administration of huge doses of this vitamin will result in a hypervitaminosis which is manifested by an increase in the rate of calcification. When the calcium phosphorus balance is negative metastatic calcification takes place which involves the blood vessels, kidneys, heart, stomach, and bronchi bringing about irritation and eventual degeneration of these tissues.

Vitamin D is the only vitamin which is not adequately supplied in a well balanced diet. It is formed in the skin when exposed to direct sunlight. Egg yolk, butter and liver are additional sources. The daily minimal requirement for adults consists of 625 International units.

VITAMIN P

In 1936 another vitamin was added to the list, vitamin P. This substance was stated to occur in lemon juice and red peppers. When cevitamic acid failed, concentrates of vitamin P were reported to decrease capillary permeability in certain pathologic conditions where this manifestation occurred. The existence of vitamin P has been questioned by several investigators. Ivy and Gray[50] have this to say concerning the citrin factor: "The status of vitamin P is by no means clear. Animal experiments have yielded no support for the existence of the vitamin. Clinical experience with the substance is not yet extensive enough to definitely establish its therapeutic or pharmacological activity. That citrin is a vitamin required by man has not been proved."

VITAMIN K

Just a few years have passed since Dam[51] discovered vitamin K in his investigative work on deficient diets in chicks, but an enormous amount of experimental and clinical research has made this product of utmost importance in the treatment of hemorrhagic diathesis associated with hypoprothrombinemia. Quick, in 1935,[52] introduced a test which provided a means of estimating plasma prothrombin and he theorized that a deficiency of vitamin K was responsible for the hemorrhagic tendencies in jaundiced patients. Warner, Brinkhous, and Smith,[53] however, were the first to report on the therapeutic value of this vitamin in humans. The mechanism of action in preventing hemorrhage was by the elevation of a low prothrombin level as was shown by Butt, Snell and Osterberg[54] with the use of vitamin K in patients with obstructive jaundice.

Vitamin K in its natural state occurs in green leaves and vegetables, principally in alfalfa, dried chestnut, cabbage, spinach, fat of hog liver, and in some fish.[55,56] Osterberg[57] has shown that large amounts of vitamin K resulted from the bacterial putrefaction of fish meal. The vitamin is a fat soluble, thermostable substance which is labile to ultra-violet light and alkali.[58] Chemical synthesis by different groups of investigators[59] has proved it to be a 2-methyl-3 phytyl-1,4-naphthoquinone. Almquist and Klose[60] studied the synthetic naphthoquinone groups and found that phthiocol possessed the same antihemorrhagic activity as the natural vitamin K. Butt et al.[61] used this preparation in the treatment of hypoprothrombinemia in humans with obstructive jaundice and found the results to be the same as those obtained in the use of alfalfa concentrate.

Inasmuch as prothrombin has not been isolated it is not possible to determine if vitamin K constitutes its basic structure or if it acts as a catalyst in the formation of prothrombin. The liver is the site of prothrombin formation as various experiments have proved. Warner[62] showed that partial hepatectomy in rats resulted in a lowered prothrombin level which increased toward normal along with liver regeneration. Andrus, Lord, and Moore[63] found that one hour after complete hepatectomy there is a drop of 45 per cent in the plasma prothrombin level and that after ten hours the level was 20 per cent of normal or lower. Postmortem examinations of the dogs revealed ecchymoses and petechiae. Liver poisons seriously affect prothrombin production. Therefore, the normal prothrombin level is dependent chiefly on the physiologic integrity of the liver. In the presence of disease of the liver, this level will vary in accordance with the severity of liver damage.

For the synthesis of prothrombin, vitamin K is essential. In patients with obstructive jaundice who have a lowered plasma prothrombin and whose diets are adequate in vitamin K, the prothrombin level will remain low until bile salts are added to the diets. Vitamin K, being a fat soluble vitamin, requires the presence of bile salts to permit absorption in the intestine. Therefore, four factors must be present to insure normal production of prothrombin: (1) Sufficient vitamin K intake; (2) the presence of normal bile salts in the intestines; (3) an adequate intestinal absorptive surface, and (4) a physiologic normal liver.

Wherever a state of hypoprothrombinemia exists the indication for vitamin K administration is present. Furthermore, whenever prothrombin deficiency is expected to result vitamin K has a therapeutic indication. Foremost of the disease entities in which vitamin K is to be used is the treatment of obstructive jaundice. Patients with this condition must be put into this classification with regards to therapeutic management: (1) Those patients with normal prothrombin time; (2) those with decreased prothrombin time; (3) those with low prothrombin time who are actively bleeding. Therapy in the first group is prophylactic while that for groups 2 and 3 is urgent. Butt et al.[64] have reported the results obtained in the use of vitamin K preoperatively in a series of 73 patients with obstructive jaundice. Two patients had bleeding preoperatively and 13 postoperatively. When no vitamin K or bile salts were given to 14 patients with this same condition, nine had bleeding postoperatively but this was controlled in seven patients by beginning this therapy. In 28 patients receiving vitamin K and bile salts pre- and postoperatively, only three had bleeding following surgery. Townsend and Mills[65] found that no bleeding occurred postoperatively in ten cases of jaundice associated with prothrombin deficiency which were treated with vitamin K bile salts. These authors state that after operation there may be further disturbance in plasma prothrombin with an abnormal tendency to bleed. Even though the prothrombin time has been normal preoperatively it may increase in six to eight hours and, with a reduction of 50 per cent or more of normal, free bleeding will occur. Hemorrhage is more apt to occur in the postoperative period especially within one to four days but may be delayed until the tenth day. One case has been reported in which bleeding occurred on the eighteenth postoperative day. Reductions of 30 per cent in the prothrombin level often occur immediately after operation. Because of this rapid change postoperatively, determinations of prothrombin time should be done frequently and at least daily during the convalescent period. The reasons for this decline in prothrombin level after the relief of biliary obstruction lie in one if not all of the following factors: Lack of vitamin K intake; temporary ileus; an anoxemia of the liver due to anesthetic agents; blood loss during the operation; and finally the absence of bile salts from the bile for several postoperative days, depending upon the duration of the biliary obstruction.[66] Stewart[67] reports the instance in which two patients with obstructive jaundice refused vitamin K therapy postoperatively and a steady drop in plasma prothrombin with subsequent hemorrhage occurred. On resuming vitamin K therapy bleeding ceased as the prothrombin time decreased. When the response to vitamin K therapy is not present both pre- and postoperatively, a markedly impaired liver is probably the cause.

Prothrombin deficiencies will usually be more marked in obstructive jaundice due to neoplasm of the pancreas, ampulla of Vater, or gallbladder than in that due to postoperative stricture of the common duct or to the presence of an obstructing stoma. Deficiency of prothrombin will also occur in the presence of complete biliary fistula; although this condition is rare and must be present a considerable length of time before the prothrombin time is disturbed. The prothrombin reserve in the body is large and this factor of safety is extremely beneficial in events such as massive uncomplicated hemorrhage and temporary vitamin deficiency diets. In this latter instance it is interesting to observe that there is evidence[68] indicating that synthesis of vitamin K occurs to some degree in the intestine due to bacillary metabolism, principally *B. coli*, *B. cereus*, and *B. subtilis*. Other clinical entities which are frequently accompanied by prothrombin deficiency are portal and biliary cirrhosis, tumefaction of the liver; acute hepatitis, chloroform and phosphorus poisoning resulting in hepatocellular damage, rarely in the presence of extra-hepatic infections such as pneumonia, carcinoma of the stomach and intestines, pyloric stenosis, and in hemorrhagic diseases of the newborn. Butt, Snell, and Osterberg[69] have shown results of lowered prothrombin levels in sprue, ulcerative colitis and celiac disease.

In vitamin K therapy the dose of the vitamin varies in different individuals and must be adjusted to the response as indicated by frequent determinations of the prothrombin time. In some instances the ordinary therapeutic dose may have to be increased many times in order to bring about satisfactory results. Rhoads[70] has used several of the vitamin products and has recommended the following dosage of the various synthetics in routine procedure: cerophyl 2.5 gm. t.i.d., klotogen 0.6 gm. t.i.d., 2-methyl-1, 4 naphthoquinone 0.002 gm. t.i.d., bile salts are to be administered along with the vitamin; bilron 0.6 gm. t.i.d., desicol 1.0 gm. t.i.d., bilein 0.6 gm. t.i.d., sodium deoxycholate 0.2 gm. t.i.d., sodium glycocholate and taurocholate 1-2 gm. daily.

The oral administration of vitamin K has been found to be the most efficacious. Occasionally, however, complications such as hematemesis, nausea and vomiting will prevent administration of the vitamin either by mouth or gastric tube thereby necessitating parenteral or intravenous injection of the vitamin. Smith et al.[71] have used phthiocol intravenously with success. Transfusion of whole fresh blood should be resorted to if the prothrombin content of the blood is below 15 per cent of normal (Quick). The elevation of prothrombin level will only be temporary and vitamin therapy must be continued. Rhoads and Panzier[72] state that prothrombin content rapidly decreases in preserved blood and that blood from "blood banks" is practically worthless in this respect. In cases in which marked liver damage is present, the most efficacious means of restoring prothrombin is by blood tranfusion.

SUMMARY

Deficiencies of vitamin A frequently will be found in tuberculosis and in hyperthyroidism and certainly in those conditions wherein the intake or utilization of the vitamin is interfered with as for example in obstructive biliary disease. Experimental work has indicated that certain anti-infective properties are possessed by this vitamin but this has not been thoroughly substantiated.

All of the individual components of the vitamin B complex are not as well understood as is vitamin B_1. However, a deficiency of one factor is usually accompanied by a lack of another. Avitaminosis B is not a surgical entity but when it accompanies a disease which is surgical the picture may be complex. In the presence of increased metabolic rate the need for vitamin B_1 is also increased. An abnormal cardiac state in hyperthyroidism can be exaggerated by a deficiency of vitamin B. Vitamin B_1 has been found to stimulate the appetite. Inasmuch as no practical clinical test exists for determining the vitamin B reserve, it is essential that the daily intake of this vitamin exceed the daily minimal requirement.

The role that vitamin C plays in the healing of wounds is of such import that actual or potential deficiencies must be corrected. Practical laboratory tests can easily be used to determine the presence of subclinical deficiencies.

In the healing of fractures vitamin D is probably of some significance. It is in the treatment of parathyroid tetany that this vitamin has practical application. Vitamin oils rich in vitamin D have been used locally in the treatment of wounds and burns with good results due to the stimulating effect on epithelialization.

Of all the vitamins, K has the most important use in surgery. Bleeding, heretofore, has been feared both before and after operations upon patients with obstructive biliary disease but this complication is unusual now that a better understanding of the etiology of this condition has been discovered and proper therapy instituted. However, it is not only in this entity that this factor is deficient for in any disease which limits the intake or absorption of this vitamin and in any liver disease which has depleted the factor of safety of this organ an interference in prothrombin production will occur with the end result of a potential or actual hemorrhagic state. This can, in most instances, be corrected by the administration of vitamin K.

With regard to all of the vitamins, one can expect to find a general avitaminosis, clinical or subclinical, in any condition manifesting deficiency of any single factor. Certainly in patients with prolonged debilitating diseases or in patients with diseases of the gastrointestinal tract this will be common. The surgical patient should have a complete study to ascertain whether or not a state of avitaminosis exists and deficiencies should be corrected before an operative procedure is undertaken.

REFERENCES

1. Sandor, S.: Lancet, 2 :738, 1936.

2. Berlien, I. C., and Davis, J. R.: Ohio State Med. J., 35 :267, 1939.

3. Lauber, H. J.: Beitr. z. klin. Chir., 158 :293, 1933.

4. Löhr, W.: Chirurg., 6 :263, 1934.

5. Löhr, W.: Deutsche med. Wehnschr., 62 :997, 1936.

6. Andernach, F., and Löhr, W.: Zentralbl. f. Chir., 63 :2493, 1937.

7. Rachet, A. J., and Busson, A.: Paris méd., 95 :308, 1935.

8. Puestow, C. B., Poncher, H. G., and Hammott, H.: Surg. Gynec. & Obstet., 66 :622, 1938.

9. Abelin, I., Goldener, E., and Kobori, B.: Biochem. Ztschr., 174 :232, 1926; 228 :165, 1930.

10. Weglin, C.: West. J. Surg., Obstet. & Gynec., 47 :147, 1939.

11. Wohl, W. G., and Feldman, J. B.: Endocrinology, 24 :389, 1939.

12. von Euler, H., and Klussmann, E.: Ztschr. f. physiol. Chem., 213 :21, 1932.

13. Abelin, I.: Ztschr. f. physiol. Chem., 217 :109, 1933.

14. Fasold, H., and Peters, H.: Ztschr. f. d. ges. exper. Med., 92 :57, 1933-34.

15. Clausen, S. W.: J. A. M. A., 111 :144, 1938.

15. Higgins, C. C.: J. A. M. A., 104 :1296, 1935.

17. Steiner, M., Zuger, B., and Kramer, B.: Arch. Path., 27 :104, 1939.

18. Ezickson, W. J., and Feldman, J. B.: Urol. & Cutan. Rev., 43 :302, 1939.

19. Oppenheimer, G. D., and Pollack, H.: J. A. M. A., 108 :349, 1937.

20. Sinclair, H. M.: Quart. J. Med., 7 :591, 1938.

21. Sure, B., and Thatcher, H. S.: Arch. Path., 16 :809, 1933.

22. Cowgill, G. R.: The Vitamins, a Symposium, Chicago, American Medical Assoc., p. 229, 1939.

23. Cowgill, G. R.: The Vitamin B Requirement of Man, New Haven, Yale University Press, 1934.

24. Frazier, W. D., and Ravdin, J. S.: Surgery, 4 :680, 1938.

25. Drill, V. A.: Proc. Soc. Exper. Biol. & Med., 39 :313, 1938.

26. Hinwich, H. E., Goldfarb, W., and Cowgill, G. R.: Proc. Soc. Exper. Biol. & Med., 28 :646, 1931.

27. Sure, B., and Buchanan, K. S.: J. Nutrition, 13 :513, 1937.

28. Cowgill, G. R.: J. A. M. A., 110 :805, 1938.

29. Kendall and Chinn: Editorial, J. A. M. A., 111 :2395, 1938.

30. Faulkner, J. M., and Taylor, F. H. L.: J. Clin. Invest., 15 :472, 1936.

31. Abbasy, M. A., Harris, L. J., and Hill, N. G.: Lancet, 2 :177, 1937.

32. Wilder, R. M., Browne, H. C., and Butt, H. R.: Arch. Int. Med., 65.390, 1940.

33. Wolfer, J. A., and Hoebel, F. C.: Surg. Gynec. & Obstet., 69 :745, 1939.

34. Sendroy, J., Jr., and Miller, B. F.: J. Clin. Invest., 18 :135, 1939.

35. Taffel, M., and Harvey, S. C.: Proc. Soc. Exper. Biol. & Med., 38 :518, 1938.

36. Lanman, T. H., and Ingalls, T. H.: Am. Surg., 105 :616, 1937.

37. Land, C. C.: New England J. Med., 221 :123, 1939.

38. Wolbach, S. B.: New England J. Med., 215 :1158, 1936.

39. Holman, E.: Surg. Gynec. & Obstet., 70 :261, 1940.

40. Puestow, C. B.: Surg. Gynec. & Obstet., 70 :195, 1940.

41. Stepp, W., Kühnan, and Schroeder, H.: The Vitamins and Their Clinical Application, Milwaukee, The Vitamin Products Co., 1938.

42. Compere, E. L., Hamilton, B., and Dewar, M.: Surg. Gynec. & Obstet., 68 :878, 1939.

43. Shohl, A. T.: The Vitamins, a Symposium, Chicago, American Medical Assoc., p. 459, 1939.

44. Puestow, C. B., Poncher, H. G., and Hammott, H.: Surg. Gynec. & Obstet., 66 :622, 1938.

45 Löhr, W.: Chirurg., 6 :263, 1934.

46. Lauber, H. J.: Beitr. z. klin. Chir., 158 :293, 1933.

47. Berlien, I. C., and Davis, J. R.: Ohio State M. J., 35 :267, 1939.

48. Weld, C. B.: J. Pediat., 9 :226, 1936.

49. McNealy, R. W., Shapiro, P. F., and Melnick, P.: Surg. Gynec. & Obstet., 60 :785, 1935.

50. Ivy, A. C., and Gray, J. S.: Surg. Gynec & Obstet., 69 :4, 1939.

51. Dam, H.: Nature, 133 :909, 1934; 135 :652, 1935.

52. Quick, A. J.: J. A. M. A., 109 :66, 1937.

Quick, A. J., Stanley-Brown, M., and Bancroft, F. W.: Am. J. Med. Sci., 190 :501, 1935.

53. Warner, E. D., Brinkhous, K. M., and Smith, H. P.: Proc. Soc. Exper. Biol. & Med., 37:628, 1938.
54. Butt, H. R., Snell, A. M., and Osterberg, A. E.: Proc. Staff Meet. Mayo Clin., 13:74, 1938.
55. Dam, H.: Biochem. J., 29:1273, 1935.
56. Almquist and Stokstad: Nature, 136:31, 1935; J. Biol. Chem., 111:105, 1935.
57. Osterberg, A. E.: Proc. Staff Meet. Mayo Clin., 13:72, 1938.
58. Almquist: J. Biol. Chem., 117:517, 1937.
59. Doisy, E. A., Binkley, S. B., Thayer, S. A., and McKee, R. W.: Science, 91:58, 1940.
60. Almquist and Klose: J. Am. Chem. Soc., 61:1611, 1939.
61. Butt, H. R., Snell, A. M., and Osterberg, A. E.: Proc. Staff Meet. Mayo Clin., 14:497, 1939.
62. Warner, E. D.: J. Exper. Med., 68:831, 1938.
63. Andrus, W., Lord, J. W., Jr., and Moore, R. A.: Surgery, 6:899, 1939.
64. Butt, H. R., Snell, A. M., and Osterberg, A. E.: Proc. Staff Meet. Mayo Clin., 13:753, 1938.
65. Townsend, S. R., and Mills, E. S.: Canad. Med. Assoc. J., 41:111, 1939; 42:541, 1940.
66. Ravdin, I. S., Johnston, C. G., Riegel, C., and Wright, S. S.: J. Clin. Invest., 12:659, 1933.
67. Stewart, J. D.: Ann. Surg., 109:588, 1939.
68. McNealy, R. W.: Illinois M. J., 78:123, 1940.
69. Butt, H. R., Snell, A. M., and Osterberg, A. E.: J. A. M. A., 113:383, 1939.
70. Rhoads, J. E.: New Internat. Clinics, 1:209, 1940.
71. Smith, H. P., Ziffien, S. E., Owen, C. A., Hoffman, G. R., and Flynn, J. E.: J. Iowa M. Soc., 29:377, 1939.
72. Rhoads, J. E., and Panzier, S. M.: J. A. M. A., 112:309, 1939.

MEDICAL MANAGEMENT OF CARDIOSPASM[*]

DONOVAN C. BROWNE, M. D.[†]
AND
GORDON McHARDY, M. D.[†]
NEW ORLEANS

Since Thomas Willis' 1679 description of the syndrome we prefer to call cardiospasm, an ever changing terminology has been offered by authors presenting their concept of this symptom complex. Common usage, a normal cardiac orifice free of organic obstruction yet producing all the clinical manifestations of an obstructive lesion, rationalize our adherence to the term cardiospasm.

Difference in opinion on etiology has been responsible for the following appelations: Achalasia, phrenospasm, hiatal esophagismus, mega-esophagus, preventriculosis, esophagectasis, paralytic dilatation, idiopathic esophageal dilatation. Little can be claimed for the adoption of any of these titles for as yet the etiologic background of this entity remains problematic.

ETIOLOGY

A resumé of possible causative factors resolves itself into three groups: (1) Intra-esophageal changes including fibrosis, kinking, anomalous length and paralysis. (2) Extra-esophageal influence by fibrosis, spasm or anomaly of the diaphragmatic crura, periesophageal fibrosis of the crural canal, an unusual "liver tunnel", pressure of lung tips and hypertrophied oblique muscle of the stomach. (3.) Neurogenic dysfunction including vagal lesions, sympathetic disturbance, mesenteric plexus degeneration due to various causes, and purely functional states.

Those explanations of the first two divisions have been discarded because of incompatability with well conducted pathologic observations. The third division has many debatable angles with conflicting experimental studies and unsatisfactory clinical observations. No theory has been proved and the cause of cardiospasm remains unknown.

Pathologic studies have been of most value in disproving all etiologic theories other than the neurogenic. Mesenteric plexus degenerative changes and vagal lesions are frequently encountered. Other changes such as the varying degrees of esophagitis, fibrosis, dilatation, kinking, hypertrophy, diverticula and even mesenteric plexus degeneration are more probably the effect rather than the cause of the entity. Uniformly, hypertrophy and dilation end approximately an inch above the cardiac end of the esophagus.

SYMPTOMATOLOGY

Dysphagia is the cardinal manifestation of cardiospasm with other symptomatology related to the degree of esophageal decompensation. The entity is usually well established before the clinical picture develops, difficulty in swallowing may at first be intermittent and occur only under such precipitating influences as emotional upsets, cold liquids and irritants; subsequently it becomes persistent and progressive.

---

[*] Read before the Orleans Parish Medical Society, October 14, 1940.

[†] From the Department of Medicine, Tulane University of Louisiana School of Medicine, and the Gastroenterology Clinic, Touro Infirmary.

When definite dysphagia becomes obvious, a pathologic esophagus can be demonstrated. If adequate therapeutic measures are not promptly exacted the syndrome develops. In the early stages, food seems to stick in the esophagus, dislodgement is difficult, the patient learns that copious liquids act as a natural hydrostatic dilator. Choking while eating in frequent; however, by force the patient can always manage to get the food through into the stomach. Various and variable degrees of retrosternal and retroxiphoid pain with radiations into the shoulders, neck and ramus of the mandible are encountered. These are the manifestations as long as the esophagus is only slightly dilated and compensates the increased intra-esophageal pressure by muscle and elastic hypertrophy.

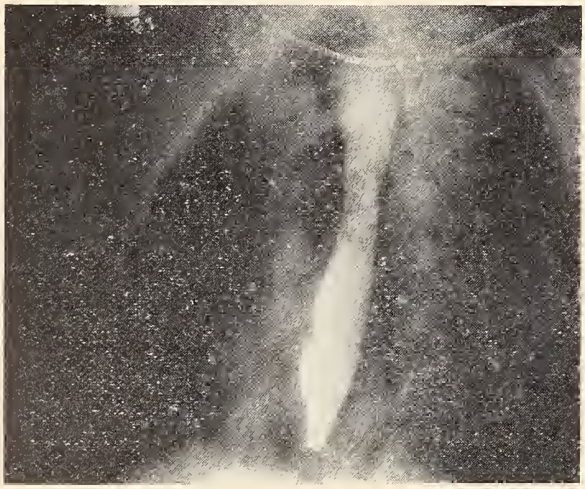


Fig. 1. Case illustrating moderately advanced cardiospasm; the esophagus at this stage is still compensated.

In decompensated cardiospasm the esophagus has dilated to become elongated and there is a resultant kinking and muscular thinning. With this advanced pathology there is esophageal retention of food producing postprandial substernal fullness with a sensation of weight in the chest and actual quantitative dyspepsia. Spontaneous and induced regurgitation of alkaline material is common with reflux into the buccal cavity at night a typical occurrence. With the development of esophagitis substernal burning becomes marked. As the disease progresses symptoms advance in severity and rapid weight loss occurs; respiratory symptoms of dyspnea and aspiration bronchopneumonic disease are reported.

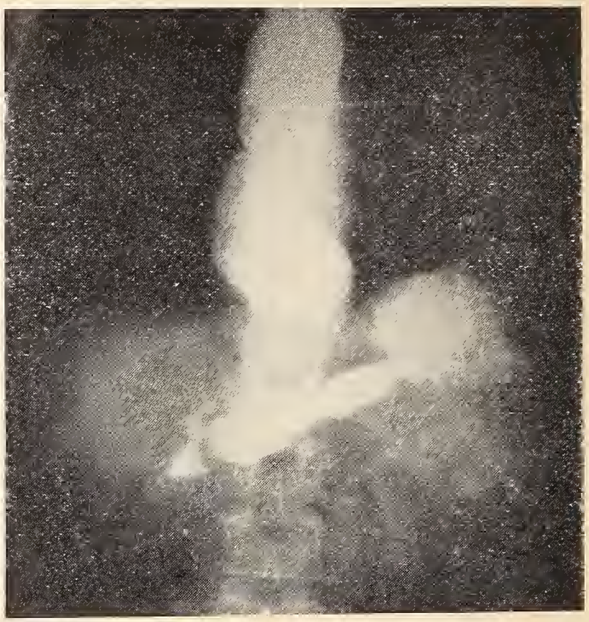


Fig. 2. Illustrating a decompensated esophagus occurring from inadequate therapy to the case shown in figure 1.

A characteristic clinical picture indicates a confirmatory esophageal roentgenogram. A blunt or smooth tapering occlusion at or near the cardia with secondary dilatation and angulation of the esophagus above it is typical. The lower end is cone shaped with the tip to the left below the dome of the diaphragm. A few enthusiastic endoscopists insist esophagoscopy is essential to a conclusive diagnosis. We feel that only occasionally is there a call for such study and we are reticent to expose patients to unnecessary scoping. In instances in which there is reasonable doubt esophagoscopy has value in excluding other diseases, particularly malignancy.

The physical signs of cardiospasm are not of significant importance.

Cardiospasm may be associated with or the cause of chronic pulmonary disease. The coincidental occurrence seems too frequent to be merely an association and the reports of bronchitis and bronchial asthma, or aspiration pneumonitis, lung abscess, and pulmonary fibrosis seem to favor cardiospasm being causative by producing reflux into the bronchial tree. Diverticulum of the

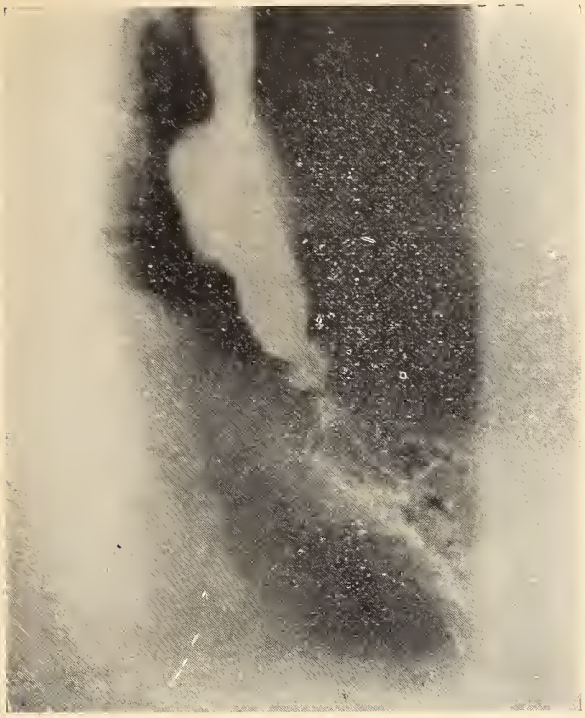


Fig. 3. Roentgenogram showing a pulsion diverticulum occurring as a complication of cardiospasm. This patient also developed a severe bronchiectasis.

esophagus has also been reported as an associant and here again cardiospasm by causing weakness of the esophageal musculature may produce the herniation. Carcinoma of the stomach or esophagus without cardiospasm is frequent and seldom seems to be the result of the chronic irritation excited by cardiospasm. Esophageal ulceration may be primary and result in scarring to cause an impure cardiospasm or it may result from the esophagitis and circulatory disturbance resulting from a true spasm.

DIFFERENTIAL DIAGNOSIS

In differential diagnosis, however, there are ten entities which, due to their obstructive esophageal nature or to their simulation in symptomatology, must be considered.

Fibrotic benign stricture in 80 per cent of cases has a history of ingestion of caustics, healed ulceration or esophagitis. Congenital etiology exists, however, and the history may be indefinite. Deep x-ray therapy to the thoracic cage may produce a stricture. X-ray is the best aid in revealing the nature of the stricture which is usually higher than the cardia.

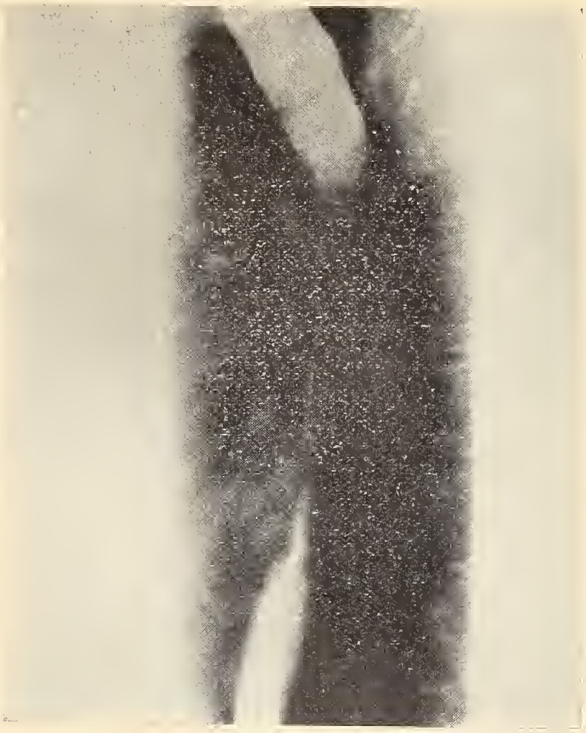


Fig. 4. Stricture of the esophagus manifested subsequent to deep x-ray therapy to the left breast.

With carcinoma there is usually a short rapidly progressive history. On x-ray there is irregularity of the shadow as it tails out —carcinoma rarely produces its obstruction at exactly the hiatus, but usually extends above. The marked proximal dilatation encountered in cardiospasm is not a part of

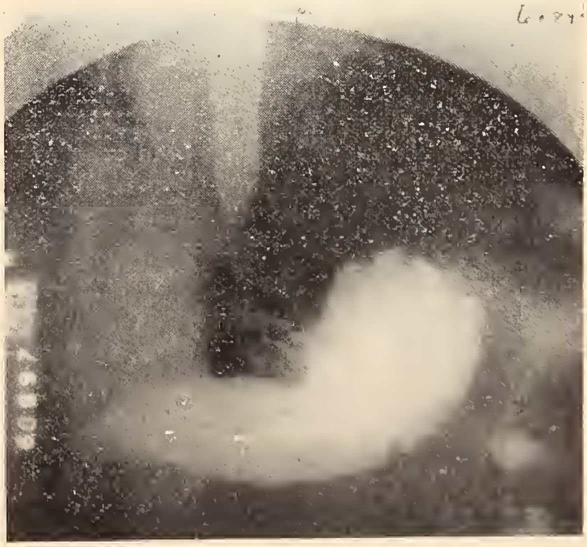


Fig. 5. The typical radiographic finding in carcinoma. The patient has a six weeks' history of dysphagia.

the picture of carcinoma. Bougienage produces bleeding. Esophagoscopy and biopsy are essential to a conclusive diagnosis.

The Plummer-Vinson syndrome of hypochromic anemia, atrophic glossitis and achlorhydria is characteristic. A negative x-ray picture proves the differentiation.

Hysteria tends to disappear instead of progress. The dysphagia is complained of at a level high in the esophagus. The characteristic roentgenologic picture is not present.

Para-esophageal hernia usually radiates pain under the left breast which is increased on recumbency; the x-ray is typical.

Mediastinal tumors give other manifestations; the obstruction is not at the diaphragmatic level and x-ray study readily reveals their extra-esophageal character.

Muscular hypertrophy of the cardiac sphincter (comparable to congenital hypertrophic pyloric stenosis) is a rare lesion and has only been diagnosed surgically or pathologically. It may be suspected from a cone-shaped smooth, symmetrical obstruction without dilatation.

Angina pectoris: Edeiken has emphasized the simulation to angina. The differentiation is achieved by proper cardiovascular evaluation, remembering angina might complicate cardiospasm.

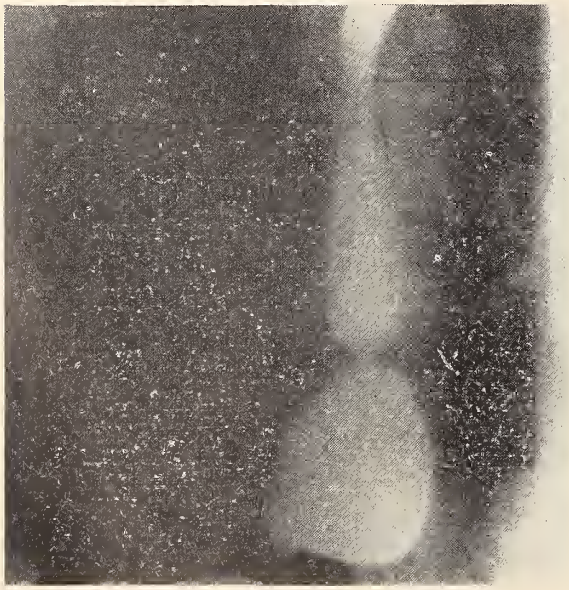


Fig. 6. An unusual radiographic study showing diffuse lower esophageal spasm associated with cardiospasm.

Diffuse spasm of the lower half of the esophagus occurs rather characteristically in relation to the temperamental status of the patient as contrasted to the generally accepted lack of this element in the cardiospastic. Roentgenoscopy definitely differentiates it from cardiospasm in revealing diffuse irregular spasm, multiple spastic segments and diffuse narrowing of the distal half of the esophagus.

Peptic ulcer of the esophagus has a clinical picture simulating an ulceration elsewhere with the predominance of symptomatology substernal and the association of extremely painful dysphagia. X-ray study may reveal cardiospasm when the esophageal lesion is at the cardia but the other changes are not present.

Diverticula of the esophagus may arise as a complication of cardiospasm. If it is primary there usually is mild dysphagia without the clinical or roentgenologic picture of esophageal decompensation.

Biliary disease may cause similar pain reference and the substernal symptomatology of cardiospasm. Differentiation is realized by an adequate evaluation and x-ray study.

TREATMENT

General measures to improve the mental and physical well being of the patient are essential but not specific measures. Therapeutically we deny the statement that drugs are of no use. We must admit gradations of severity. There are mild cases which, after single bougienage, may be controlled by an occasional antispasmodic. Conversely severe instances may likewise gain temporary and emergency relief during periods between dilatations. We have found nitroglycerine the most effective medication for emergency relief and for pre-dilatation relaxation in difficult cases. Aminophyllin gives excellent results without the unpleasant reactions of the nitrates. Atropine, papaverine hydrocloride, amyl nitrate and stramonium have relaxing qualifications in selected instances but in our experience are only effective in mild cases and in association with dilatation in the severe cases. Morphine relaxes the distal esophagus well but for obvious reasons is avoided.

Thiamin chloride may be used to supplement other measures. Regardless of the validity of Etzel's contention, a vitamin B deficiency, whether primary or secondary being unproved, is frequently apparent.

Hyperpyrexia, local diathermy and spinal anesthesia have been advocated but deserve only mention.

Bougienage of one variety or another has been practiced for more than fifty years in relieving dysphagia due to cardiospasm.

In a review of dilators, mention must be given to semi-stiff fiber bougies and mechanical divulsors inserted through the esophagoscope. Their use necessarily involves a semioperative procedure, they are more applicable in cases in which scarring or fibrous stricturing exists. Sippy's graduated olives, and those of others, in various sizes and shapes attached to a fiber and guided by a swallowed thread, are introduced fearlessly by persistent adherents. They are probably safest in expert hands. We have seen under the fluoroscope an apparently taut cord loosen, the bougie fail to engage the cardia and pass blindly into a dilated esophageal pouch. Because of this as well as of other obvious limitations, they must be reserved for the expert endoscopist.

Hurst introduced his mercury filled bougies in 1913. They are rubber tubes varying in diameter (from 21 to 40 English), 31 inches long and each containing the same quantity of mercury (21 ounces). These are carried and guided through the esophagus by their weight, opening a passageway by their size.

These dilators, in our experience, are the easiest passed; they cause less discomfort and are unquestionably the safest instruments available in properly indicated cases. Successively larger tubes are passed at a single sitting, and in most cases the largest one meets with only slightly more resistance than the smallest.

Additional factors in the use of these bougies include the following: (1) In the instance of narrowing at sites, in addition to that at the cardia, all are dilated to the same extent by the one passage. (2) Patients have been taught to use the bougies in selected instances. (3) No fatality has been recorded from the use of this procedure. (4) It is obvious that these bougies have limitations and are best employed when the cardiac opening remains dependent and the existing pathologic condition has not brought about a great sacculation at a level below the hiatus, although we have employed them quite successfully in severe cases. (5) The large size, #40, often proves annoying to patients because of the bulk in the pharynx.

The history of the bag divulsion dates back to J. C. Russel's work of 1898. In 1906 at The Mayo Clinic, Plummer modified Russel's instrument and introduced into prominence the rubber covered silk balloon using hydrostatic pressure. Moersch and Vinson, with their excellent work and statistic accumulation, have sustained their preceptor's teachings.

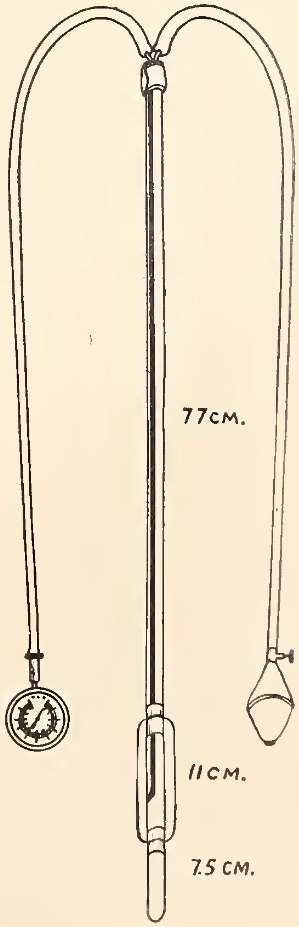


Fig. 7. Sketch of mercury pneumatic dilator.

The instrument is a rubber tube supported by a whalebone staff tipped with an olive just behind which is a rubber covered silk balloon which is dilated by hydrostatic pressure regulated by special adapters. All dilations are carried out over a previously swallowed silk thread (five yards) held taut, which is thought to eliminate all danger of perforation. It requires a source of running water and is not portable and for this reason is not as practical as could be wished. Failure to place the dilator, unsatisfactory results due to improper technic, considerable pain and a mortality percentage are admitted; however, it has a definite advantage in that divulsion is achieved by its use.

In 1929 Frank Smithies designed the pneumatic dilator modification of Plummer's apparatus in an effort to remedy proved limitation of the latter divulsor. Smithies' dilator, being portable, requiring no special water supply, being devoid of whalebone staff but having a metal shaft with safety control, and being of inexpensive construction, was a notable achievement. It rendered fluoroscopic control of divulsion dilation practical. Its only essential distinction from the Plummer dilator, however, is that it is pneumatic.

Since September 1938, we have used a mercury pneumatic dilator. This new dilator and divulsor combines the principles of Hurst, Plummer, and Smithies and achieves a position of maximal efficiency and safety.

It is a #21 Hurst mercury tube; on the distal end, 7.5 cm. from the tip, has been incorporated a rubber covered silk bag 11 cm. in length to which a small catheter runs through the mercury filled tube. By this means distention, under the control of a sphygmomanometer, may be effected.

The distinct advantages of this instrument are that: (1) A swallowed guiding thread is not required; it is easily passed, being the size of the small Hurst dilator. It is carried through by virtue of its contained 21 ounces of mercury, which is sufficient to force the closed sphincter and which is in itself a guide but which is not sufficiently forceful to traumatize or perforate the esophagus. (2) This type dilator is most easily passed with less discomfort than any other type and does not show any tendency to coil in a dilated prediaphragmatic dilatation, as might be suggested by some. (3) Only a single instrumentation is required, as contrasted to the passing of an olive prior to the use of a Plummer dilator and the use of graduated Hurst bougies. (4) It offers controlled pneumatic divulsion, which is more practical and safer than hydrostatic dilation, and this in combination with the bougie qualifications of the Hurst dilator. (5) It is applicable to x-ray examination.

Dilatation and divulsion rarely fail and the prognosis is such that one seldom considers operative procedures. Gastrotomy as such is merely palliative. Retrograde dilation with Tucker's instrument and divulsion manually or by forceps from the gastric side are major procedures reserved for those few instances in which adequate indications exist. Heller, Windel, Heyrowsky, Watts, Womack and others have each introduced an operative procedure of note adapting pyloric surgery to the cardia with various cardioplastics and anastomoses.

Knight has offered resection of the left coronary artery and the associated sympathetic fibers running to the cardiac esophagus. This procedure and other nerve section measures have not given a permanent result. The success of bilateral cervicothoracic sympathetic ganglionectomy is nullified by the production of a Horner syndrome.

SUMMARY

Cardiospasm is a condition which as yet defies establishment of etiology. Bougienage offers the most satisfactory method of management. Plastic and sympathetic surgery may be considered for severe cases that have not responded to a careful non-operative regimen.

BIBLIOGRAPHY

Browne, D. C., and McHardy, Gordon: A new instrument for use in esophagospasm, J. A. M. A., 113:1963, 1939.

Bryant, B. L.: A consideration of the reflex of cardiospasm, Ann. Otol. Rhin. & Laryng., 48:802, 1939.

Cabot: Case 24141, New England J. Med., 218:607, 1938.

Chandler, F. G.: Achalasia, with pleural effusion, simulating mediastinal growth, Brit. M. J., 2:398, 1939.

Chaikin, N. W.: Modern concepts of cardiospasm, Rev. Gastroenterol., 6:332, 1939.

Edeiken, J.; Angina pectoris and spasm of the cardia with pain of anginal distribution on swallowing, J. A. M. A., 112:2273, 1939.

Flynn, R.: Achalasia of the esophagus, Australian & New Zealand J. Surg., 8:224, 1939.

Heatley, C. A.: The treatment of stricture of the esophagus, Am. J. Surg., 42:260, 1938.

Lendrum, F. C.: Anatomic features of the cardiac orifice of the stomach, Arch. Int. Med., 59:474, 1937.

Meade, H. C.: A case of sympathectomy in the treatment of achalasia of the cardio, Irish J. M. Sc., 6:130, 1939.

Nagel, G. W.: Cardiospasm, Calif. & West. Med., 49:63, 1938.

Schmidt, H. W.: Diffuse spasm of the lower half of the esophagus, Am. J. Digest. Dis., 6:693, 1939.

Sodeman, W. A.: Cardiospasm or achalasia of the esophagus, Am. J. M. Sc., 199:132, 1940.

Sturtevant, Mills: Cardiospasm, Arch. Int. Med., 51:714, 1933.

Tilford, E. D., and Simmons, H. T.: Treatment of gastrointestinal achalasia by spinal anaesthesia, Brit. M. J., 2:1224, 1939.

Tucker, G.: Cardiospasm: a pneumatic-mercury dilator, Ann. Otol. Rhin. & Laryng., 48:808, 1939.

Vinson, P. P., and Carr, D. T.: Cardiospasm, J. M. A. Ga., 27:440, 1938.

Vinson, P. P.: Management of benign stricture of the esophagus, J. A. M. A., 113:2128, 1939.

Winkelstein, A., and Bierman, W.: Artificial hyperpyrexia in the treatment of achalasia of the esophagus, J. Mt. Sinai Hosp., 5:132, 1938.

Womack, N.: Esophagoplasty for esophageal achalasia, Surg. Clin. N. A., 18:1241, 1938.

DISCUSSION

Dr. Allan Eustis (New Orleans): I wish to emphasize again one point brought out by Dr. Browne, especially in the last picture shown. It is very important before treating these cases medically for cardiospasm to be sure there is no malignancy. This was very forcibly impressed upon me a short while ago. A man giving definite symptoms of cardiospasm, on x-ray examination and esophagoscopy did not show any evidences of malignancy and was dilated for about six months by a competent laryngologist. He progressed very satisfactorily and the cardiospasm was much less intense when a second esophagoscopy was made after six months and also an x-ray, at which time definite carcinoma was demonstrated.

An attempt was made to remove the growth but it was already too extensive and only a gastrostomy was performed; the man died about four months later. Had this diagnosis been made when the symptoms of cardiospasm first presented themselves a resection of the lesion could have been performed most probably. We all know that the only chance for recovery from cancer is in early operation and I mention this case simply to prevent us from becoming too enthusiastic about the medical treatment of these patients.

Dr. M. E. DeBakey (New Orleans): Undoubtedly, the large majority of these patients can be treated conservatively but a certain number will require surgical intervention. Moersch found that of 805 patients treated conservatively, 71 per cent were completely relieved and Wachs observed that about 30 per cent required surgical therapy. Thus, it has been estimated that approximately a third of the patients will probably need more radical therapeutic procedures. Obviously, every person should be given the benefit of conservative treatment first but if such measures do not accomplish adequate relief of symptoms in a reasonable period of time, surgical intervention should be considered. Most physicians are reluctant to consider surgical therapy. This is probably due to the erroneous impression that the risk of operative therapy is considerably greater than that of conservative therapy. As a matter of fact, the difference in the mortalities is very slight. In Moersch's series of 804 cases the total mortality was 2.8 per cent and of 239 cases collected from the literature by Dr. Ochsner and me in which cardioplasty and esophago-gastrostomy were done, the mortality was 4.2 per cent.

A great variety of operative procedures have been devised and employed in the surgical treatment of this condition which clearly reflects the diversity of opinion and the conflict of views regarding its etiology and pathogenesis. Dr. Ochsner and I have recently reviewed the literature on this subject and have classified these procedures into: (1) those directed at the dilated esophagus; (2) those directed at the cardia; (3) those directed at the diaphragm, and (4) those directed at the nerve supply. In our opinion the most rational procedure is esophago-gastrostomy which consists of a side-to-side anastomosis between the esophagus and stomach in a manner similar to the Finney gastro-duodenostomy. This was originally performed by Heyrovsky, in 1912, and modified by Gröndahl, in 1916. We have performed this procedure in two patients with complete relief of symptoms. In another patient, sympathectomy was employed but symptoms recurred within two weeks after operation.

Of 370 cases of achalasia collected from the literature in which surgical therapy was institutetd, 21 (5.6 per cent) were treated by phrenotomy; 30 (8.1 per cent) by vagotomy and sympathectomy; 80 (21.6 per cent) by transgastric dilatation; 99 (26.8 per cent) by esophago-gastrostomy; and 140 (37.8 per cent) by cardiomyotomy and cardioplasty. In this series of collected cases the best results were obtained by esophago-gastrostomy with an incidence of 93.9 per cent and the worst by vagotomy and sympathectomy with an incidence of 33.3 per cent. The incidences of good results obtained in the group treated by phrenotomy, transgastric dilatation, and cardioplasty were 57.1 per cent, 70.8 per cent, and 81.4 per cent respectively. The highest incidence of failures 36.6 per cent occurred in the group treated by vagotomy and sympathectomy and the lowest incidence, 1 per cent, in the group treated by esophago-gastrostomy. Failures among other operative procedures ranged from 10 per cent to 28 per cent. The highest operative mortality, 16.6 per cent, occurred in the group treated by vagotomy and sympathectomy and the lowest 3.5 per cent among those treated by cardioplasty. The operative mortality in the esophago-gastrostomy group was 5 per cent. These results confirm our opinion that the most rational procedure is esophago-gastrostomy because it gives the best results with the least incidence of failures and a very low mortality.

Dr. Mims Gage (New Orleans): I feel that cardiospasm is a disease. There is the same thing in the duodenum, in common duct, bile duct, in the colon and also in the urethras with more or less similar onset and symptoms. We all have these patients. Most physicians treated them by dilatation and a large per cent recover. The majority of cases occur in neurotic women and neurotic men. A neurotic man is worse than a neurotic woman but the incidence is less. There are a number of persons who will not be relieved by dilatation. With early diagnosis the majority of them are benefited by conservative treatment first. Only a small per cent need operation, and those really need it. Continued dilatation will not give relief in the common bile duct.

This is a disease about which we know little of the etiology. Many procedures have been tried but, as stated, all of these patients need conservative treatment in the beginning. A large number have been injected at The Mayo Clinic and have been relieved. Some were probably women where probably if given a hypodermic it would have done just as much good.

TESTOSTERONE PROPIONATE* IN IMPOTENCE:

A REPORT OF EIGHT CASES

W. A. REED, M. D.
AND
T. E. McMILLAN, M. D.
NEW ORLEANS

Dorland[1] defines impotence as "Lack of power: chiefly of copulative power or virility. It may be atonic, due to loss of impulse; psychic, dependent on mental complex; or symptomatic, resulting from some other disorder." It is in these latter two broad categories that most of the difficulty in adequately determining and treating the cause of a given case of impotence is encountered. In one case the problem may be a very simple one; in another, it may be impossible of solution. For example, there is no mystery about the impotence of the eunuch or castrate. Here there is definite testicular deficiency. The administration of testosterone to these patients will frequently render them potent, as has been shown by many investigators, among whom are Vest and Howard,[2] Foss,[3] Kenyon et al.[4] and Miller.[5] On the other hand, the impotence of the sexually mature male, apparently normal physically, may defy the combined skill of internist, urologist and psychiatrist.

Theoretically the use of testosterone in cases of impotence should be reserved for those cases in which definite testicular deficiency can be demonstrated or for those cases of probable psychic origin in which it is hoped that the testosterone being given will cause sexual stimulation and thus overcome whatever psychic factor may be causally operative. However, in our experience it has been very difficult to segregate cases of impotence which have their etiology solely in deficient testicular function. This is so because as yet there is no simple and satisfactory method of quantitatively estimating male sex hormone in the body or in urinary excretion. We are still forced to rely upon an examination of the secondary sex characteristics to determine whether or not we are dealing with testicular hypofunction. Here again, although marked deviation from the normal in size of penis, prostate, distribution of body hair, and pitch of voice, often point to testicular deficiency, only slight deviations may be utterly insignificant clinically.

In individuals beyond middle age, even these diagnostic criteria are not unusually applicable but in these patients one would expect a deficient testicular function physiologically. Careful examination of the histories of cases presented in this article will show how complex the problem of impotence may be. We have selected eight patients whom we thought might respond to testosterone therapy, even though it is admitted that none of the eight was an absolute candidate for this treatment. Yet, since most of our patients were elderly, our decision to give them testosterone was bolstered by the work of Laroche and Bompard[6] who found that testosterone often favorably influenced the impotence of physiologic involution. Much the same findings are reported by Schmitz[7] who treated 45 cases of involutional hypogonadism with testosterone propionate. Symptoms including depression, nervousness, premature aging, and impotence have been noticed with beginning prostatic hypertrophy. In 36 cases, definite and dramatic improvement followed muscular or subcutaneous injections of 5 mg., one to three times weekly. No side reactions were observed.

---

*The testosterone propionate used in our cases was neo-hombreol generously provided by the makers, Roche-Organon, Inc., Nutley, N. J.

Deficiency in testicular secretion of varying degree was suspected in all of our cases, yet it will be seen that many other factors thought to be etiologically concerned in impotence are operative. For example, local genito-urinary pathology of a mild degree was present in all patients and an attempt was made to eliminate this through appropriate local treatment. Some of the cases were complicated by environmental factors thought to be conducive to impotence. In so far as was possible these were corrected. Similarly, the psychic background of the patient was gone into and an appeal to reason made where indicated. Our patients presented a number of factors which may seriously interfere with even a normal physiologic state of potency. For example, too frequent intercourse, abnormal sex practices, the taking of narcotic or hypnotic drugs, temporary below par constitutions are suspicious etiologic considerations present in one case or another.

Following are the case histories in our series:

CASE NO. 1

A 57 year old male complaining of prostate trouble for 10 years, manifested by occasional slight burning of urination, slow stream and rather marked impotence. His only treatment has been irregular prostatic massage which always relieved the urinary burning. His examination revealed him to be in very good condition. The only positive finding was a benign prostatic hypertrophy (grade 2) with 1¾ ounce residual urine. Treatment was first instituted on June 6, 1940, and he was then seen at approximately weekly intervals for seven weeks. During this time he had prostatic massages, silver nitrate instillations, endoscopic therapy, dilatation of posterior urethra, and thyroid and strychnine internally. No improvement was noted. Then on September 11, testosterone propionate therapy was instituted, together with the same local therapy. He received 25 mg. testosterone at weekly intervals for thirteen weeks. A slight, but definite improvement was noted in his sexual ability following the institution of testosterone therapy. His erections were better and intercourse once a week fairly satisfactory. There has been no decrease in the benign prostatic hypertrophy. The exact etiology of this impotence was not determined. The hypertrophy may be a factor, or the fact that his wife is twenty years younger than he may be a cause.

CASE NO. 2

A 56 year old male complaining of impotency for one year. Prior to 1935 he had very satisfactory intercourse three times a week. Then due to illness of wife he abstained except about once every six to eight weeks for the next two years. He then attempted to resume his previous schedule, but found that he was able to have intercourse about every two weeks. More frequent attempts resulted in poor erections and premature ejaculation. His past history was essentially negative. Examination revealed an intellectual, well balanced male in excellent physical condition. He was given prostatic massages at weekly intervals, with no benefit. Then testosterone therapy was started and he received 15 injections of 25 mg. each at five to seven day intervals. During this time he also received prostatic massages, urethral dilatations and instillations of weak silver nitrate into the posterior urethra. He also received thyroid internally. At no time did he note any improvement in his sexual ability nor was there any change in his physical examination. A period of rest and participation in outdoor exercise was advised, but still there was no improvement in intercourse. Again testosterone therapy, together with endoscopies, urethral dilatations and prostatic massages were instituted. He received 10 injections of 25 mg. each, supplemented with local treatment during the next six weeks. Still no improvement was noted. No etiologic factor can be ascertained except that his complaint began after a period of abstinence. We thought this man should respond to testosterone therapy.

CASE NO. 3

A 48 year old male complaining of impotency for the past seven years. He managed to have intercourse every few months but quite unsatisfactorily. His erections were always very poor. His history revealed that he had suffered with asthma for several years and took barbiturates frequently. Also that his complaint started after many financial difficulties. He maintained, however, that his difficulties had no effect on his sexual ability. His general physical examination was negative, except for a very mild prostatitis. Testosterone therapy was started and he received 25 mg. at five to seven day intervals, until 22 injections had been given. During this time he also had prostatic massages, urethral dilatations and instillations of weak silver nitrate which soon eliminated all local morbid anatomy. Definite improvement was noted after the fifth injection and he continued to improve until he was able to indulge in very satisfactory intercourse once a week. During the asthmatic attacks the use of barbiturates of course caused recurrence of his impotency. He continued to do fairly well two months after starting treatment. This patient seems definitely benefited by testosterone.

CASE NO. 4

A 22 year old colored male complaining of complete impotency. History reveals no erection for three months, and prior to this time he had coitus every day for the past five years. His past health was excellent; he has had no venereal infection. His examination revealed a well developed almost perfect physical specimen. Extensive diagnostic procedures in the clinic were carried out because of many complaints he subsequently offered, all of which were on a neurotic basis. The only positive finding was by the neurologist, who diagnosed a neurosis on the basis of his impotency. The only apparent cause for his impotence was fatigue. Curiously he showed practically no posterior urethritis or prostatitis. Therapy to the posterior urethra, prostatic massages and urethral dilatations with complete rest from intercourse were carried out for four months, but no improvement noted, and his many aches and pains and low morale continued. He was then given testosterone 25 mg. every five days, plus weekly local treatment until he had had 25 injections. After the eleventh injection he began to awake with a fair erection and improvement continued until he was able to have normal intercourse again, although he was still restrained as to the number of times he might try coitus each week. With revival of his erections the many other symptoms disappeared and he felt perfectly well.

CASE NO. 5

A 50 year old male complaining of poor erections for three years, and especially during the past year, with no sexual desire during this time. Past history revealed a low blood pressure of several years' duration, gastric hyperacidity and bleeding hemorrhoids. Morning erections failed if he tried coitus. Had gonorrhea four times and a hard chancre twelve years ago, all of which were eradicated by treatment. Subsequent blood and spinal tests have revealed no indication of trouble. He is now married for the second time, his wife being 26 years of age. He smokes 40 cigarettes daily and gets very little exercise. Physical examination revealed suspicious focal infections in mouth, small external and internal hemorrhoids and a mild prostatitis. Cystoscopy revealed a slight obstruction due to mild prostatic hypertrophy. All foci of infection were first eliminated and thyroid and strychnine prescribed. Injections of 25 mg. testosterone were given at weekly intervals for ten weeks, together with endoscopies, urethral dilatations, prostatic massages and weak silver nitrate instillations. Definite improvement was noted after ten weeks, but at the best he could have coitus only once every seven to ten days. Undoubtedly the psychic factor and local pathology were both operative in the etiology of this impotence.

CASE NO. 6

A 64 year old male complaining of almost complete impotence for two years. Past history revealed an anginal attack three years ago, an uncomplicated gonorrhea 30 years ago. He is happily married and comparatively free of worries. The only positive finding on examination was a definite chronic prostatitis. It was decided again to combine local therapy with testosterone, and 25 mg. injections were given at five to seven day intervals, together with prostatic massages, occasional urethral dilatations and weak silver nitrate instillations. He also had thyroid internally. After 12 injections he showed definite improvement of his impotency and coitus was fairly satisfactory. He continued to show 3 to 4 plus pus in the expressed prostatic secretion in spite of the local therapy. The value of testosterone in this case was ascertained only by comparison with similar cases treated by local therapy alone. We feel that he was benefited by the injections.

CASE NO. 7

A 48 year old male complaining of marked impotence for one and a half years, of fairly sudden onset, and complete failure of erection for the past two months. He feels excellent generally and has enjoyed good health. He had uncomplicated gonorrhea 30 years ago. History revealed some marital strife existing due to his extramarital activities and he works very hard ten to twelve hours daily and participates in very little outdoor recreation. His physical examination was essentially negative except for a very mild posterior urethritis. The etiology of this impotence was environmental and influenced by overwork. Since testosterone seemed to be out of place in such a case, only local therapy was used for four weeks, with no improvement being noted. In fact he had even lost his urge for coitus. He was given injections of 25 mg. of testosterone every five days, together with the local therapy. He was persuaded to give up his girl friend and straighten out his domestic difficulties. After ten weeks his libido and erections were definitely improved and he is now having satisfactory coitus twice a week.

CASE NO. 8

A 40 year old male complaining of very poor erections, prematurity of ejaculation and flat sensation for three years, with loss of libido for two months. History revealed gonorrhea 15 years ago, complicated by prostatitis. Considerable scar formation was present in the bulbous and posterior urethra. The onset of his impotence was gradual and associated with marked loss of morale, even to the point of suicidal tendency. His examination was negative except for a definite prostato-vesiculitis, posterior urethritis and scar formation in the posterior and bulbous urethra. Treatment was directed at elimination of local pathology as this appeared to be the only cause of impotence. After eight weeks he improved enough to have fair coitus every eight to twelve days, but erections were still very poor, as was his morale. Local pathology eliminated as well as possible, we turned to supportive treatment with testosterone and he was given a series of twelve 25 mg. injections, one every five days, together with thyroid internally. Local treatment was also continued. Very definite improvement was noted after six weeks, at which time he was having satisfactory coitus once or twice a week, and his morale showed a great change for the better. After 12 injections he was given neo-hombreol dosules* to be used three times a week. He continues to do very well.

SUMMARY

These cases of impotence illustrate the difficulty that exists in segregating those cases which owe their etiology only to deficient secretion of testosterone. Psychic and environmental factors, together with local pathology, are present in some degree in nearly all cases. Although testosterone propionate therapy alone is not sufficient in all patients it should be used in all at least adjunctly. Removal of local pathology, stimulation of the posterior urethra with silver nitrate, heat and stimulation by sitz baths or Faradic current are other treatments and modalities which should be employed. Injections of 25 mg. of testosterone propionate at five day intervals seemed definitely beneficial in conjunction with local therapy and no ill effects were noted. In some instances the addition of small daily doses of thyroid seemed to help. We were strongly impressed by the fact that testosterone propionate greatly improves the low morale which is often exhibited by impotent men.

REFERENCES

1. Dorland, W. A. N.: American Illustrated Medical Dictionary, 18th Edition.
2. Vest, S. A., and Howard, J. A.: Clinical experiments with use of male sex hormones. Testosterone propionate in hypogonadism, J. Urol., 40:154, 1938.
3. Foss, G. L.: Testosterone propionate on a postpuberal eunuch, Lancet, 2:1307, 1937.
4. Kenyon, A. T., and others: Effect of testosterone propionate in eunuchoidism, Proc. Soc. Exper. Biol. & Med., 37:683, 1938.
5. Miller, N. E., Hubert, G., and Hamilton, J. B.: Mental and behavioral changes following male hormone treatment of adult castration, hypogonadism and psychic impotence, Proc. Soc. Exper. Biol. & Med., 38:538, 1938.
6. Laroche, G., and Bompard, E.: The experimental treatment of impotence in males with male hormone, Le Prog. Med., 65:530, 1938.

---

*Neo-hombreol dosules "Roche-Organon" (testosterone propionate ointment in individual dose containers for percutaneous use).

SARCOMA OF THE UTERUS*

JOSEPH ZISKIND, M. D.†
AND
HERBERT J. SCHATTENBERG, M. D.†
NEW ORLEANS

The infrequency of sarcoma of the uterus as compared to carcinoma of this organ has caused the former to receive rather scant attention in the literature. It appears that Lebert[1] made the first diagnosis of sarcoma in 1845 by microscopic examination. However, it is since 1860, when C. Meyer[2] presented a case to the Berlin Obstetrical Society, that sarcoma of the uterus was recognized as a clinical and pathologic entity.

INCIDENCE

Despite its infrequency, sarcoma of the uterus is far from being a pathologic curiosity. Novak and Anderson[3] found during a period of twenty-five years, 59 cases of sarcoma out of 26,973 case specimens, an incidence of 4.5 per cent of uterine malignancies. Veit[4] noted 1,493 carcinomata to 40 sarcomata, a ratio of 1:37.2 in 42,395 gynecologic cases. At Mt. Sinai Hospital in New York City,[5] 236 carcinomata, as compared to 21 sarcomata, a ratio of 1:11.2,

---

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

†From the Department of Pathology, Tulane University School of Medicine and the Charity Hospital of New Orleans, Louisiana.

were found in a series from the gynecologic service. In Kimbrough's[6] series of 43 cases of sarcoma the incidence was found to be 3.2 per cent of uterine malignancies.

DIAGNOSIS

It is not often that the diagnosis of sarcoma is made preoperatively. There are no definite criteria for making such a clinical diagnosis. Symptoms such as bleeding or abnormal discharge may be present but do not distinguish it from carcinoma or perhaps fibroids. A rapid increase in size of myoma, especially when associated with bleeding, would be suggestive of a sarcomatous change in a previous benign leiomyoma. Later in the course of the disease, pain, anemia, cachexia and weakness may be noted. Occasionally curettage may aid but then the tumor must have grown into the endometrial cavity or must be of endometrial origin. This tumor is usually found in women during middle life, most frequently; according to Novak[7] in the fifth decade. Sarcoma botryoides, the grape-like sarcoma which is very rare is, however, most often found in infancy.

Although sarcoma may arise in any part of the uterus, the body is much more frequently the primary site as compared to the cervix. This greater frequency may be explained by the greater incidences of myomas in the corpus as compared to the cervix.

The disease will extend by direct growth, by lymphatics and by the blood stream. Since the hematogenous route is a rather important one, organs such as the lungs and liver are not infrequently involved. One also occasionally notes rather extensive metastases to the intestines, brain, omentum and peritoneum.

PATHOLOGY

Most sarcomas of the uterus are mural in origin. It may be primary or may arise from a pre-existing leiomyoma. The incidence of sarcomatous degeneration of myomas varies from 0.41 per cent to 6.16 per cent in a review of 10 series of cases comparing sarcoma to myoma. There has been considerable discussion in the past as to the histogenesis of this tumor. The problem was whether it arose from the muscle cells or the connective tissue. At present it is generally accepted that sarcoma arises from the muscle tissue. There is also the question as to whether the tumor arises from mature muscle cells or from undifferentiated cells found in the muscle wall. Most observers agree that sarcoma does not arise from mature cells. Novak[7] mentions the fact that all the constituent cells of the uterus are mesodermal in origin and therefore sarcoma could arise from any of these elements. This is also true for the mesodermal mixed tumor. It is upon a histogenic basis that these tumors are usually classified: (1) those arising in the muscle or connective tissues of the uterine wall; (2) those arising in myoma of either the corpus or cervix; (3) those arising in the mucous membrane of either corpus or cervix, and (4) those arising from the blood vessel apparatus. It must be remembered, however, that due to the aggressive tendency of sarcoma it will soon destroy any evidence as to its site of origin and make it difficult to classify these histogenetically. For practical purposes, then, the tumors are classified according to their microscopic appearance; namely, spindle cell, round cell, mixed cell and giant cell types. Even here difficulties arise because the cell type in different tumors and even in the same tumor may show various grades of differentiation making for difficulty in classification.

Grossly, sarcoma varies in appearance depending upon the location and histogenesis. When it arises in a myoma, which is the most frequent type, there are certain appearances which will suggest malignant changes. These malignant changes are usually near the center of the fibroid but may be noted occasionally at the periphery. The usual firm, grayish-white, fibrous appearing tumor is replaced by a homogeneous, soft, pinkish-gray tumor. There may be areas of necrosis and hemorrhage. Sometimes it is difficult to differentiate grossly sarcoma from myomas with degenerative changes. We must then resort to microscopic diagnosis. Here again cellular fibroids may cause difficulty in interpretation. Mural sarcoma may also appear as a nodular type of humor; this then makes it difficult to decide whether it arose in a pre-existing myoma. More commonly the mural sarcoma is diffuse and may give a uniform enlargement of the uterus which may mimic an early pregnant uterus.

Sarcoma of the endometrial stroma is much more uncommon than leiomyosarcoma. It is a type of tumor which is not generally appreciated and may be confused with those arising from the uterine musculature. Novak and Anderson[3] reported five endometrial sarcomas occurring among a series of 59 sarcomas of the body of the uterus. McDonald, Broders and Counseller[8] found 20 sarcomas which they thought arose in the endometrium during a period from 1904 to 1939 at the Mayo Clinic. The latter observers found the average age to be 50 years. The commonest symptom was vaginal bleeding. This was present in 17 of their cases. Other symptoms and signs noted rather infrequently were visualization of the tumor by protrusion through the cervix into the vagina, frequency of urination and an abdominal tumor. The symptoms were usually less than one year in duration. Grossly, the tumors were usually polypoid, projecting into the uterine cavity. The tumor may be diffuse. Occasionally, the tumor could be seen invading the muscle wall. In all but two patients the tumor was located in the region of the fundus. The two remaining sarcomas were located lower down in the uterus immediately above the external os. Histologically, the cells were spindle-shaped. Frequently there was ulceration and infection of the tumor. Large areas of necrosis were noted in the rapidly growing tumors. Many showed areas of myxomatous degeneration, this change being one not found in leiomyosarcomas and therefore was used as a differential point. Again, invasion of the muscle was present in all cases except two and the transition of normal stroma to neoplastic was evident in six cases. Within the tumor a few non-neoplastic endometrial glands could be found at the transition zone. These authors felt that this type of sarcoma is fibrogenic rather than a sarcoma sui generis. Reticulum stains are very helpful in differentiating this tumor from anaplastic carcinomas. In sarcomas the relation of reticulum to the tumor cells is very intimate and constant, the fibrils forming a delicate supporting stroma which penetrates between the individual tumor cells. This reticulum is formed by the tumor cells. In carcinoma the tumor cells do not produce new reticulum fibers. The prognosis in these cases was very poor. There was a recurrence of 66.6 per cent among those patients who were traced.

We recently had the occasion to observe a case of endometrial sarcoma at the Charity Hospital in New Orleans:

CASE REPORT

The patient was a 48-year-old white woman who was admitted to the hospital on January 16, 1941, with a chief complaint of vaginal bleeding. She had had regular menstrual periods every 30 days, lasting six or seven days, up until November 1940. Since this time she had bled almost continuously. Physical examination was negative except for a lacerated and chronically diseased cervix. The uterus was enlarged, firm and fairly good in position. The adnexae were negative. On January 23, 1941, some tissue was removed from the cervical canal which microscopically suggested sarcoma possibly of endometrial origin. On February 5, 1941, a total hysterectomy and a bilateral salpingoöphorectomy was performed. At the time of operation about 100 c. c. of a bloody fluid containing necrotic

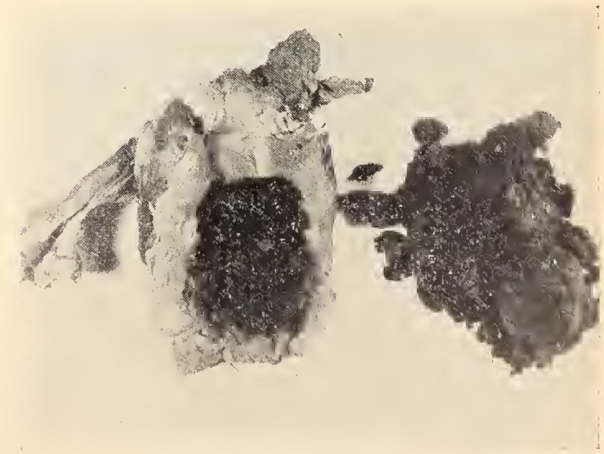


Fig. 1. Opened uterus showing the endometrial sarcoma attached to lower portion of uterine cavity in region of the internal os. The large mass of tissue adjacent to the uterus is necrotic tumor tissue which filled uterine cavity.

tissue was found free within the peritoneal cavity. The left tube and ovary were adherent to the rectosigmoid, but could be easily separated. The uterus was somewhat enlarged and boggy. The uterine wall was thinned out and the endometrial cavity was dilated. Within the uterine cavity was a large friable, polypoid necrotic mass attached to the endometrium in the lower portion of the uterus (fig. 1). No definite gross evidence of invasion into the myometrium was noted. The left tube and ovary were adherent to each other by firm, red fibrous adhesions. The right tube and ovary were grossly normal. Microscopically this was a spindle type of tumor with areas of myxomatous changes and necrosis (fig. 2). At the junction of tumor with the endometrium occasional normal endometrial glands could be seen within the sarcoma but only at this site (fig. 3). Reticulum stains revealed the intimate relationship of tumor cells with reticulum seen in sarcomas of this type (fig. 4). The left ovary showed a few metastatic deposits in the cortex. The course of the patient following the operation was progressively downhill. She developed ascites and on tapping 3900 c. c. of bloody fluid at one time and 2600 c. c. of similar fluid at another time was obtained. In spite of transfusions, vitamins and irradiation she expired on March 29, 1941, 51 days following the operation. Unfortunately no autopsy was obtained.

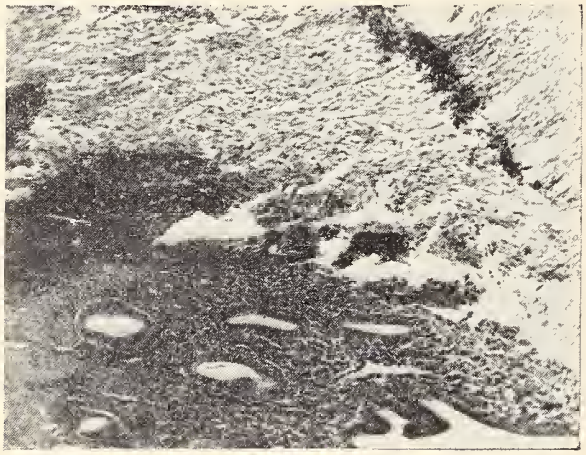


Fig. 2. Section at junction of sarcoma and normal endometrium showing the spindle cells and myxomatous appearance of the tumor.

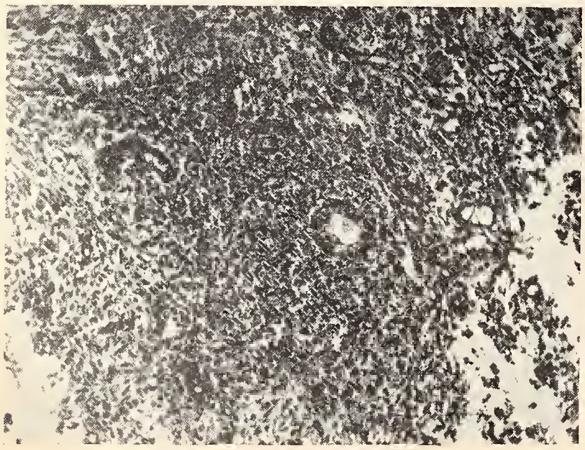


Fig. 3. Section of tumor in the vicinity of transition zone with normal endometrium, showing a few non-neoplastic endometrial glands in the sarcoma.

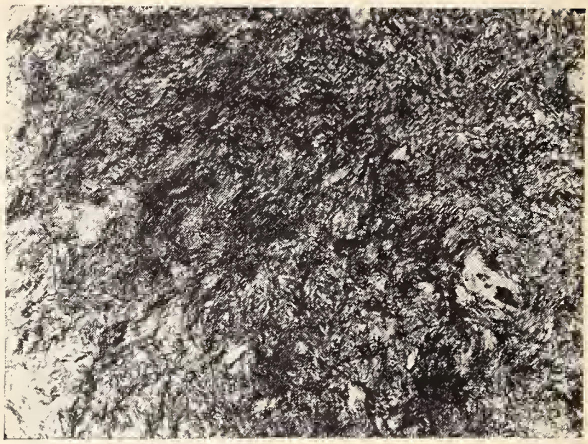


Fig. 4. Reticulum stain showing the prominent mesh of fibers.

OTHER SARCOMATA

Although the leiomyosarcomas and the endometrial sarcomas are the most frequent of mesodermal tumors found in the uterus, others have also been noted. Sarcoma botryoides, the grape-like tumor, of the cervix is a rare type. It was first described by Spiegelberg[9] in 1897. Although it may be found in adults, this malignancy has often been noted in infants. It may be noted as a grape-like, edematous mass of polyps involving the cervix and upper vagina.

Malignant mixed tumors of the uterus are diagnosed upon the demonstration of unusual tissues such as cartilage, bone or striated muscle. These tumors are very rare and are among the most malignant neoplasms of the body of the uterus. They occur almost always in women between 45 and 65 years of age. Most of these tumors are polypoid in gross appearance. As to the origin of these tumors some consider them to be malignant tumors of metaplastic origin, whereas others believe their pathogenesis depends upon multipotential anlagen. The latter theory appears to be more correct.

Carcinosarcoma is not considered to be a collision tumor but one in which sarcomatous elements are mixed with carcinomatous cells. One must be careful here. It is often difficult to tell whether there are two separate elements or whether the epithelial cells have undertaken a sarcomatous appearance.

Other sarcomas which have been reported but are so rare that they will merely be mentioned are melanosarcoma, lymphosarcoma and angiosarcoma.

PROGNOSIS

The prognosis in sarcoma of the uterus varies with the type of tumor and the time of diagnosis. Those tumors which are slow growing are most amenable to treatment and possible cure. It appears that the best results are obtained in sarcomas arising in myomas. Even here women usually come for treatment when the disease is advanced. In rapidly growing sarcomata the prognosis is poor and the duration of life is rarely over three years. The grape-like sarcomata of the cervix are exceedingly rapid in growth, metastases occur early and the disease is almost always fatal. This is also true for the mesodermal mixed tumors of the uterus.

There has been some work done on the significance of mitoses as an indication of the degree of malignancy of uterine sarcomas. In 1920, Evans[10] made a study of this phase of the problem and concluded that the degree of mitotic activity parallels the clinical malignancy of these tumors. The conclusions arrived at were dependent upon actual mitotic counts. Kimbrough,[6] in 1934, came to a similar conclusion. He found that the small round cell and polymorphous tumors are more highly malignant than the spindle-celled type. Recurrences after operation were more than twice as frequent in a group of tumors showing a large number of mitotic figures as in tumors with relatively lower counts. Conversely, the five year salvage was almost four times as great in the low count groups as in the tumors which showed numerous mitotic figures. He felt that mitotic counts were of distinct value in prognostication of a case. As to treatment, it appears that radical surgery is best with radiotherapy used as a supplement.

SUMMARY

Sarcoma of the uterus, although not rare, is an uncommon tumor of the uterus. It may arise from any of the tissues of the corpus or cervix. The sarcoma which arises in myomas is usually less malignant than that arising in the general musculature of the uterus. The endometrial sarcomas are much less common than the muscle tissue tumors and are quite malignant. Mitotic counts appear to be of importance in determining the prognosis in a case of sarcoma of the uterus.

REFERENCES

1. Lebert, from Carlisle, W. T.: Sarcoma of uterus, Illinois M. J., 70:227, 1936.
2. Meyer, C.: Verhandl. d. Berliner Gesellsch. f. Geburtsh, 12:19, 1860.
3. Novak, E., and Anderson, D. F.: Sarcoma of uterus, Am. J. Obstet. & Gynec., 34:740, 1937.
4. Veit, J.: Handbuch d. Gynakologie, 3:516, 1908.
5. Frank, R. T.: Gynecological and Obstetrical Pathology, D. Appleton and Co., p. 232, 1931.
6. Kimbrough, R. A., Jr.: Sarcoma of uterus, Am. J. Obstet. & Gynec., 28:723, 1934.
7. Novak, E.: Gynecological and Obstetrical Pathology, W. B. Saunders Co., Philadelphia, 1940.
8. McDonald. J. R., Broders, A. C., and Counseller, V. S.: Sarcoma of endometrial stroma, Surg., Gynec. & Obstet., 70:223, 1940.
9. Spiegelberg, O.: Sarcoma colli uteri hydropicum papillare, Arch. f. Gynak., 14:178, 1897.
10. Evans, H.: Malignant myomata and related tumors of the uterus, Surg., Gynec. & Obstet., 30:225, 1920.

NEW ORLEANS
Medical and Surgical Journal
Established 1844
Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

King Rand, M. D., Ex officio
For one year: James K. Howles, M. D.
For two years: Leon J. Menville, M. D., Chairman.
William H. Perkins, M. D.
For three years: Lucien A. LeDoux, M. D., Vice-chairman
H. W. Kostmayer, M. D.
Secretary

EDITORIAL STAFF
John H. Musser, M. D.......................*Editor-in-Chief*
Willard R. Wirth, M. D..*Editor*
Edwin L. Zander, M. D....................*Associate Editor*

COLLABORATORS—COUNCILORS
H. E. Bernadas, M. D.
Daniel N. Silverman, M. D.
C. C. deGravelles, M. D.
M. D. Hargrove, M. D.
W. A. Rodgers, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.
Paul T. Talbot, M. D....................*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the eighteenth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

THE NEW OFFICERS

The Journal published last month the names of the officers who were elected at the State Meeting in Shreveport. However, because of the necessity of going immediately to press, it was not possible to comment otherwise on the selections made by the House of Delegates.

Dr. Emmett Irwin, who was made President-elect to succeed the present splendid President, Dr. King Rand, is one of the best known doctors in New Orleans and the state. A man of delightful personality, Dr. Irwin has obtained an outstanding reputation as a surgeon. Forceful and dynamic, Dr. Irwin has held all the most important elective local offices, such as President of the Orleans Parish Medical Society and President of the New Orleans Graduate Medical Assembly. He has been a successful executive in whatever he has undertaken.

Dr. R. T. Lucas, who was selected as First Vice-president, is one of the prominent pediatricians in the state. Dr. Lucas was responsible for the splendid meeting that was held in Shreveport. As Second Vice-president, Dr. H. B. Alsobrook was elected. Dr. Alsobrook has maintained continuously an active interest in the state and parish organizations and has been a force for good in both organizations. Dr. Robert F. Sharp, Third Vice-president, is another New Orleans man liked and admired by all of his many friends.

Dr. J. Q. Graves, who has given outstanding service in the past as Delegate to the American Medical Association, was naturally re-elected and as his alternate Dr. Boni DeLaureal, a member of the City Board of Health, a teacher at Tulane and a prominent internist in New Orleans, was selected.

The Journal is particularly pleased to note that the four state Councilors who came up for re-election were unanimously re-elected. The names of DeGravelles, McMahon, Martin and Couvillion are names known to all members of the Society. These men have been active, conscientious and faithful in their duties as Councilors.

The selection of the committees showed excellent judgment on the part of the Delegates. Drs. Talbot, Fossier and LeJeune will make an excellent group to arrange for the scientific work of the organization. Dr. R. B. Harrison well deserved re-election as Chairman of the Committee on Public Policy and Legislation and the men who will work with him, Drs. Alsobrook, McMahon and the President and the Secretary-Treasurer ex-officio will carry out the mandates of the state organization in an efficient and capable manner. Dr. W. A. Ellender was elected to the Committee on Medical Defense.

The Journal is particularly fortunate in that the House of Delegates saw fit to reelect Drs. Kostmayer and LeDoux to succeed themselves on the Journal Committee. These men have shown great interest in the conduct of the Journal and their help and advice have always been of extreme value. We are happy to announce that Dr. James K. Howles was elected to serve the unexpired term of the late lamented Dr. John A. Lanford.

The Journal feels confident that next year the activities of the Society will progress steadily forward. These new men, together with the officers who still hold office, will ensure a successful year for our organization.

———o———

THE PAST YEAR OF THE JOURNAL

It has been suggested by the Journal Committee that it might be well to familiarize the members of the Louisiana State Medical Society with some of the details concerning the material published by the New Orleans Medical and Surgical Journal. In fulfilling this suggestion it might be said that in the year from May, 1940, to April, 1941, this information was given to the House of Delegates: There was a total of 109 scientific articles appearing in the Journal, making up 497 pages. Forty-six of these papers were articles presented before the Louisiana State Medical Society at its annual meeting, comprising 219 pages all told. Some 38 of the papers were presented before the Orleans Parish Medical Society, totalling 161 pages. In addition to these papers, 25 were original contributions submitted by authors, almost entirely Louisiana men who had observed, recorded, and reported.

In the section of the Journal not devoted to scientific business, there were 32 pages of editorials; 24 pages of hospital staff transactions and 32 pages of book reviews. Altogether there were 666 pages of reading matter, plus 296 pages of advertisements. From the notation of the number of papers presented, and by those who make a habit of reading the Journal, it can be observed that a large variety of subject was dwelt upon and presented to the state members.

Particularly encouraging is the appearance of articles from the members of the Society. The 25 papers that were presented represent a considerable increase over the past. On the other hand, it is somewhat discouraging to find that secretaries of hospital staffs do not and will not submit reports of their staff transactions. Before the average hospital staff monthly meetings there are often presented some extremely interesting cases, stimulating results and unusual pathologic conditions. Just a brief statement as to these conditions often suffices to bring out the highlights and to put on record something which, unless this is done, will be known only to the limited group of the hospital staff. Any and every hospital in the state is at liberty to have their staff transactions published in the Journal.

There were almost 64 pages of news of the Louisiana State Medical Society and 17½ pages of Orleans Parish news. This again is a source of discouragement. In spite of the fact that the secretaries of Parish and District Societies have been written to repeatedly, urging them to submit to the Journal the details of their meetings, the doings of their fellow practitioners and information which is of interest to most readers, it is almost impossible to secure the cooperation from more than one or two men in the state. The news items are always read with interest; they will be scanned when scientific material is neglected. They sometimes bring out information which could not be obtained in any other way about the friends and practitioners removed some distance from their confrères. Again it is earnestly urged that the secretaries cooperate with the Journal Committee in sending to the editor information about their local society and their local medical men.

———o———

COUNTER PRESCRIBING

The difficulty that has occurred in the effort to trace down a batch of improperly compounded sulfathiazole has been brought about in part by the fact that some of the supply apparently was sold over the counter to lay individuals. The doctor of medicine is wont to inveigle against the druggist because he does prescribe or at least sells medicine which is pharmacologically active, possibly toxic and very possibly poisonous if taken in several large doses. Any drug that has a definite action on the human organism is potentially dangerous. The druggist is by no means the only one to blame for the promiscuous distribution of pharmacologic preparations which may be detrimental. The doctor is equally at fault, perhaps more so because he has had a scientific training and realizes that promiscuous prescribing may be harmful. The big wholesale drug houses are quite active in pointing out that the physician is harming himself and hurting his practice when he verbally gives a patient an order to buy such and such a drug over the counter. It is so much simpler and easier to say to a patient "get a bottle of blank and take one tablet every night" than it is to sit down, write a prescription and give the official name of the preparation. After the patient is told to buy this or that, the next time he gets it he will probably go directly to the druggist. Furthermore, he is just as likely as not to tell his friends that a particular medicine is valuable and advise them to take it. The consequence is that the physician loses money, an office visit and many a patient because of his carelessness in advising the patient to buy medicine without a prescription.

The tremendous growth in the sale of aspirin is a splendid example of popularizing a drug largely through the doctor. Aspirin originally was offered only to the physician and pharmacist. Most of the barbiturates which have trade names are bought at the present time by the patient without the advice of a physician and of course without a prescription.

The doctor, in justice to himself and to his fellow practitioners, should avoid using trade names; he should use the official name in writing a prescription; he should not prescribe potent preparations over the telephone or tell the patient to buy them by the trade name; he should avoid sidewalk consultations with promiscuous advice to take something or another when he may not know what is the underlying cause of his consultor's complaint.

Lastly, the dispensing of samples handed out to the patient by the doctor is becoming an unmitigated evil. The patient is given a sample in the original package and finds that the preparation is successful with himself; when he wants more he takes the original package to the druggist and asks that the pharmacist give him more of the same. He also is prone to treat his friends, assuming that because a certain preparation he has been given has effected a relief of symptoms in his case it will do the same for the friend and his same symptoms. This applies particularly to the antiacid preparations which are distributed right and left by the pharmaceutical houses that make them. The doctor would do well to order, on his own prescription blank, the pharmacist to dispense the preparation that he wishes to try rather than simply pulling out the drawer and handing it out to the patient.

PERIPHERAL NEURITIS PRODUCED BY THE SULFONAMIDES

An article in a recent number of the Journal of the American Medical Association seems of sufficient importance to comment upon and to call the attention of the medical profession to the subject matter of this provocative paper. It represents a study that was made by a group in Minneapolis relative to nerve injuries produced by the sulfonamide series.

The authors* comment on the fact that from time to time nerve injuries have followed the employment of this widely used group of drugs. Peripheral neuritis is by no means unknown. They have drawn an analogy between the different chemical forms of the sulfonamides with the different arsenical preparations, some of which may produce nerve injury to a much greater extent than do others. In this study the concentration of the several sulfonamide preparations in the blood, in a peripheral nerve (sciatic), the spinal cord, brain, liver and kidneys was determined quantitatively. They state that a cumulation of at least four of these drugs may occur in the sciatic nerve. The three least injurious are sulfanilamide, sulfapyridine and sulfathiazole. The other chemical preparations now being employed for clinical use are progressively more injurious than these first three.

---

*Bieter, R. N., Baker, A. B., Beaton, J. G., Shaffer, N. J., Seery, T. M., and Orr, B. A.: Nervous injury produced by sulfanilamide and some of its derivatives in the chicken, J. A. M. A., 116:2231, 1941.

Merely because an occasional relatively severe case of peipheral neuritis follows the use of sulfonamide therapy is no reason to do away with the use of these drugs in people having serious infections which require their administration. However, this work simply is an additional reason why the sulfonamides should not be used promiscuously. They are drugs that have powerful action and may have deleterious aftereffects. The benefits that have been brought about are spectacular but caution should be employed in making use of the sulfonamides unless there are definite indications for them.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TOURO INFIRMARY
New Orleans

The regular monthly meeting of the Medical Staff was held on Wednesday, May 14, at 8 p. m. The meeting was opened by a clinico-pathologic conference conducted by Dr. S. H. Colvin. The remainder of the scientific program included a case report of "Complete Heart Block Following Coronary Infarction, with Recovery" which was presented by Dr. B. R. Heninger. Dr. Manuel Gardberg reported a series of "Cases of Coronary Disease — Electrocardiographic Diagnosis." Included in the scientific program were moving pictures shown by the Winthrop Chemical Company.

SOUTHERN BAPTIST HOSPITAL
New Orleans

The regular monthly meeting of the Clinical Staff was held on Tuesday, May 27, in the Staff Room. The program consisted of the following presentations: "Congenital Transverse Vaginal Septum; Ovarian Cyst; Pregnancy and Transverse Presentation" by Dr. H. B. Alsobrook; "Plasma and Plasma Protein" by Dr. Hilaire Ogden; "Neonatal Death Due to Hemorrhage from Liver" by Dr. E. L. King.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

REPORT OF THE HOUSE OF DELEGATES TO THE GENERAL ASSEMBLY OF THE LOUISIANA STATE MEDICAL SOCIETY

SIXTY-SECOND ANNUAL SESSION
Shreveport, April 21-23, 1941

Submitted herewith is resumé of action taken by the House of Delegates in session during the 1941 meeting of the State Society:

Motion was made and carried to withdraw the resolution offered at the 1940 meeting of the House of Delegates to amend the Charter, Constitution and By-Laws deleting the mention of "material interests" as one of the benefits offered by the Society.

Dr. W. H. Browning, Vice-president of the Board of Institutions addressed the meeting, after which motion was made and carried that a special committee, composed of the Committee on Mental Health, Committee on Hospitals and Committee on Public Policy and Legislation, be appointed to study the report made by Dr. Browning and make a report to the next meeting of the Executive Committee.

Amendments

Motion was made and carried that the recommendation of the Special Committee in re Term of Full Time Secretary that the Charter be amended to state that the secretray-treasurer shall be elected for a term of not more than five years, be adopted.

The report of the Committee on the Secretary-Treasurer's Report wherein it was recommended to approve the recommendation to amend Section 7 of Article IV of the Constitution omitting the phrase "physicians legally qualified to practice medicine in the State of Louisiana," so that first year interns will be qualified for membership, was accepted.

In accordance with recommendations offered by the Committee on the Care of the Indigent Physician and the Committee on Public Policy and Legislation, motion was made and carried that the By-Laws be amended to read "Each member shall pay into the Society an annual assessment of seven dollars and a half ($7.50), which shall constitute his membership dues . . . " This amendment was made in order to increase the amount in the Indigent Physicians' Fund and to provide additional funds for legislative purposes. *In accordance with action taken by the House of Delegates, one dollar of the increased amount of dues for each member will be allocated to the indigent physicians' fund and fifty cents to the legislative fund.*

Recommendations contained in the following reports were acted upon:

Report of President

1. Continue to recommend and obtain the best men possible for the various state and municipal medical positions: Approved.

2. To keep harmonious relations between the physicians of the state and those individuals occupying key medical positions to the end that this cooperation will elevate and improve the character of medical achievements and practice of medicine for the best interest of the public: Approved.

3. Be cautiously on the alert for any signs of socialized medicine: Approved, with emphasis.

4. Support in every way the national emergency by urging and requesting all eligible physicians to assume their just responsibilities as the medical profession has so conspicuously done in the past: Approved.

5. Give to the full time secretary that full cooperation and confidence so essential for the successful performance of his duties, thus encouraging him in his new efforts. Lengthen the term of this office by removing the restriction of two years. It is wholly unfair to expect Dr. Talbot or any other physician of ability to give up his private practice and to disassociate himself from the many duties, responsibilities and contacts, and the Society, after two years, to discontinue his employment: Approved.

6. To authorize the president to appoint a committee to study the possibility of creating a pension or retirement fund for members who choose to avail themselves of such a privilege after having practiced medicine for definite periods of time: Approved.

Report of Secretary-Treasurer

1. If it is desired that doctors serving first year internship be accepted as intern members, that Section 7 of Article IV of the Constitution be amended omitting the phrase "physicians legally qualified to practice medicine in the State of Louisiana": Approved.

Report of Councilor of Third District

1. That these courses (extension courses in practically all branches of medicine) continue and to thank those responsible for this work: Approved.

Report of Councilor of Fifth District

1. It would not seem inappropriate at this time to state, in view of the tremendous expenditure of Federal funds for various services rendered for all other types of work, that it is our opinion that all physicians rendering service as examiners for the various draft bodies should be compensated for their work. We would favor a resolution looking toward this end: Tabled.

Report of Committee on Cancer

1. To reaffirm the activities of the Cancer Committee: Approved.

2. To appropriate two hundred dollars ($200.-00) for expenses for the year 1941: Referred to the Budget and Finance Committee with recommendation that it be approved if feasible.

3. That the Secretary-Treasurer write a letter to the newspapers in Alexandria, Lake Charles, Monroe, Lafayette, Baton Rouge, and Shreveport which have published articles on cancer control and to the radio stations in Alexandria, Lake Charles, Monroe, Baton Rouge, Shreveport, and New Orleans which have given time for radio talks on cancer, thanking them for their cooperation. It is also recommended that a letter of thanks be sent by the Secretary-Treasurer to Dr. J. H. Musser, Director of the Louisiana State Health Department, for the donation of space in the Journal for the publication of monthly articles on the subject of cancer: Approved.

Report of Committee on Care of the Indigent Physician

1. That the annual dues of the Society be increased one dollar ($1.00) per member; this extra dollar to be allocated to the Fund for the Care of the Indigent Physician: Approved.

At the last session of the House of Delegates the chairman of the Committee on Care of the Indigent Physician stated that he understood that a wrong impression had been created to the effect that money appropriated to the Indigent Physicians Committee was deflected by the Budget and Finance Committee. He said that this was not so; that the House of Delegates appropriated the money to other purposes, and that he wished to make this comment so that there would be no further misunderstanding in the matter. Motion was made and carried that the delegate who stated he was under this impression should be notified of the report refuting this statement.

Report of Committee on Maternal Welfare

1. That field workers should have a refresher course two weeks annually, in an obstetrical hospital or on the obstetrical floor of some hospital, where they can observe and refresh themselves on newer methods in the care of obstetrical cases: Approved.

2. That the component societies of the State Society be requested to have several papers before meetings, relative to maternal welfare in order to further the idea of adequate prenatal and postnatal care: Approved.

3. That the Shreveport Charity Hospital be included in the institutions which should have special residents in obstetrics and gynecology: Approved.

Report of Committee on Mental Health

1. Your committee would recommend that you endorse this report with the qualifications mentioned: Referred to the special committee composed of the Committee on Mental Health, Committee on Hospitals and Committee on Public Policy and Legislation.

Report of Committee on Tuberculosis

1. The Louisiana State Medical Society Committee on Tuberculosis, appointed by the President of the Society, should serve in an advisory capacity to the Director of the Department of Institutions of the State of Louisiana, on problems pertaining to the care of tuberculous patients in our state: Approved.

2. Additional beds for the care of tuberculosis should be provided on a district basis as suggested: Referred to Committee on Hospitals.

3. In each of the seven unit centers clinics for the diagnosis and ambulatory treatment of tuberculosis, including artificial pneumothorax, should be established: Referred to Committee on Hospitals.

4. The necessary laboratory facilities for diagnosis should be provided in each of these centers for the use of physicians of the district: Referred to the Committee on Hospitals.

5. Major surgical collapse procedures are to be carried out at the centers located in New Orleans and Shreveport: Referred to Committee on Hospitals.

6. Tuberculosis wards should be provided in mental and penal institutions for the adequate care of inmates affected with this disease: Referred to Committee on Hospitals.

7. An annual report should be made by the Department of Institutions to the Louisiana State Medical Society, through the Committee on Tuberculosis: Approved.

Report of Committee on Walter Reed Memorial

1. In lieu of a memorial to Walter Reed that an annual prize, in the form of a medal, be offered each year to a senior student at L. S. U. and at Tulane who write the best thesis on tropical disease and preventive medicine; the heads of the departments of tropical medicine at Tulane and L. S. U. to select the best thesis: Approved.

Report of Committee on Public Policy and Legislation

1. That some financial arrangement be made for legislative work to pay for an all-time individual at the legislature and also so as to have the advice of an attorney in this connection: Approved.

2. (Suggestion) That any member of the Louisiana State Medical Society found present at the legislature opposing the wishes of the Louisiana State Medical Society should be asked to resign: Amended to the effect that any member of the State Society who is in direct opposition to the recommendations of organized medicine be referred to the house of Councilors for action.

Report of Special Committee in re Term of Full Time Secretary

That the Charter be amended to state that the secretary-treasurer shall be elected for a term of not more than five years: Approved.

After a verbal report by a member of the Committee to Prepare the History of the State Society, motion was made and carried that the Chairman of the House of Delegates write a message of appreciation to Dr. Matas, for his tireless effort in producing for Louisiana such an outstanding contribution of the history of medicine.

The suggestion in the report of the Louisiana State Board of Medical Examiners that due to the fact that the medical students' condition in regard to the draft is not clarified, some suitable resolution be adopted by this body in reference to the question, was approved. Such a resolution was submitted and approved. Motion was made and carried that Dr. R. W. O'Donnell and Dr. F. C. Bennett be recommended for appointment on the Board of Medical Examiners.

The following reports, which contained no recommendations, were accepted: Council, Councilors of First, Second, Fourth, Sixth, Seventh and Eighth Districts; Delegate to 1940 meeting of A. M. A.; Fraternal Delegate to 1940 meeting of South Carolina Medical Association; Fraternal Delegate to 1940 meeting of Texas Medical Association; Advisory Committee to Woman's Auxiliary; Committees on Hospitals, Journal, Medical Defense, Medical Education, Scientific Work, and Resolutions; and Committee to Prepare History of State Society.

Motion was made and carried that telegrams be sent to Drs. H. E. Bernadas, F. J. Chalaron and D. C. McBride, who were unable to attend the meeting due to illness.

Dr. Alvis Greer, of Houston, Fraternal Delegate from the Texas Medical Association, brought greetings from his association.

A communication received from the Orleans Parish Medical Society, including a communication regarding unjust criticism of the profession in the city and state was presented and motion was made and carried that the communication be favorably received and the House express its appreciation and confidence; also that copies of the communication be sent to the Governor, Lieutenant Governor, Director of the Department of Institutions and to the Journal for publication.

A motion that the secretary be empowered to change the type of badge used by the Society for the past several years was tabled.

An amendment to the By-Laws that Section 4 of Chapter XIV, concerning medical defense, in which it is stated "the committee shall have full authority governing all matters pertaining to the Medical Defense features of this Society . . . " by adding "making it mandatory for this committee to employ a local counsel for the doctor in difficulty" was offered. This amendment was not unanimously approved and due to the fact that it was submitted at the last session of the House, will have to lay over until the 1942 meeting for final action.

A telegram from one of the delegates of the Mississippi State Medical Association, extending invitation to members of the Louisiana State Medical Society to attend the 1941 Mississippi meeting to be held in Biloxi in May, was received.

Motion was made and carried that letters be sent to Lieutenant Governor Mouton, Drs. E. M. Toler, Holderith and Fernandez, and other physicians in the House and Senate, expressing thanks for their assistance.

The question of dedication of future meetings of the Society was referred to the Executive Committee.

The following officers were elected:

Dr. Emmett L. Irwin: President-elect.

Dr. R. T. Lucas: First Vice-President.

Dr. H. B. Alsobrook: Second Vice-President.

Dr. Robert F. Sharp: Third Vice-President.

Dr. Val Fuchs: Chairman of House of Delegates.

Dr. A. W. Martin: Vice-Chairman of House of Delegates.

Dr. C. C. deGravelles: Councilor Third District.

Dr. Rhett McMahon: Councilor Sixth District.

Dr. C. A. Martin: Councilor Seventh District.

Dr. W. F. Couvillion: Councilor Eighth District.

Dr. J. Q. Graves: Delegate to A. M. A. 1942-43.

Dr. Boni deLaureal: Alternate delegate to A. M. A. 1942-43.

The following members of committees were elected:

Scientific Work: Drs. P. T. Talbot, Chairman; A. E. Fossier and F. E. LeJeune.

Public Policy and Legislation: Drs. Roy B. Harrison, Chairman; H. B. Alsobrook, Rhett McMahon, King Rand and P. T. Talbot.

Journal: Drs. H. W. Kostmayer, L. A. LeDoux and J. K. Howles.

Medical Defense: Dr. W. A. Ellender.

Invitation was accepted to hold the 1942 meeting in New Orleans.

Respectfully submitted,
P. T. Talbot, M. D.,
Secretary-Treasurer.

COMMUNICATIONS

Because of its importance, we reprint here copy of letter and enclosed amendments and proposed amendment which Dr. Talbot recently sent out to all members of the State Society.

Dear Doctor:

Enclosed is copy of proposed amendment to the Charter of the State Society, offered at the 1941 meeting recently held in Shreveport. This amendment changes Article V by adding "for a term of not more than five years," after "Secretary-Treasurer." Final action on this amendment will be taken at the 1942 meeting of the Society.

Enclosed also is copy of amendment to the Constitution which was approved at the 1941 meeting. This amendment deletes "Physicians legally qualified to practice medicine in the State of Louisiana" at the beginning of Section 7 of Article IV.

A copy of the amendment to the By-Laws which was approved at the 1941 meeting is also sent herewith. This amendment was made in order to increase the amount in the Indigent Physicians' Fund and to provide additional funds for legislative purposes. In accordance with action taken by the House of Delegates, one dollar of the increased amount of dues for each member will be allocated to the Indigent Physicians' Fund and fifty cents to the legislative fund.

The members of the House of Delegates were agreed that the increase in dues for these two purposes was thoroughly justified and it is hoped that you will realize the importance of increasing the amount in these funds and assist by paying your membership dues promptly at the time when due. The increase in dues will be effective in 1942.

Your cooperative will be greatly appreciated.

Yours very truly,
P. T. Talbot, M. D.,
Secretary-Treasurer.

PROPOSED AMENDMENT TO CHARTER

Article V—The offices of this corporation shall be a President, President-elect, three Vice-Presidents, Secretary-Treasurer and Councilors, one from each councilor district, the Chairman of the House of Delegates, the Vice-chairman of the House of Delegates and the retiring President of the Society. These officers, and the members to be presented to the Governor for appointment on the State Board of Medical Examiners, shall be elected by the House of Delegates at the annual meeting by a majority vote of the delegates present. The President, President-elect, Vice-Presidents, Chairman of the House of Delegates and the Vice-Chairman of the House of Delegates shall be elected for a term of one year; the Secretary-Treasurer shall be elected for a term of not more than five years; the Councilors shall be elected for terms of two years each, being divided into two groups so that as nearly as possible one-half shall be elected annually. At the first election, one group shall be elected for one year, and the other group for two years, and thereafter each group shall be elected for two years. All of the officers shall serve until their successors are elected and installed. No person shall be elected to any office who is not in attendance upon the annual session, and who has not been a member of the Society for the past two years. The officers elected at the last annual meeting shall hold office under this Charter until their successors are elected and installed. Vacancies due to death, resignation, or other causes, shall be filled for the unexpired term by appointment of the Executive Committee. The Executive Committee shall also recommend names to the Governor for vacancies occurring by death, resignation or removal on the State Board of Medical Examiners between the annual session.

AMENDMENT TO CONSTITUTION
ARTICLE IV

Section 7. Intern Members—Physicians serving internships in accredited hospitals shall during their period of internship be eligible to membership in this Society through their respective component societies as Intern Members. They shall not be entitled to medical defense, nor shall they be eligible to hold office or vote. Dues for Intern Membership shall be $1.00 per year. (April, 1941).

AMENDMENT TO BY-LAWS
CHAPTER IX

Assessments and How Payable

Section 1.—Each member shall pay into the Society an annual assessment of seven dollars and a half $(7.50), which shall constitute his membership dues. Those specifically exempted in the Constitution shall not be liable for this assessment. Intern members shall pay the sum of one dollar ($1.00) per annum. Of the amounts collected from active members, one-half dollar (50c) per capita shall be set aside as an annual entertainment fund, any surplus of which shall be paid into the Indigent Physicians' Fund. In addition, one-half dollar (50c) per capita shall be paid from the dues collected from active members into the Medical Defense fund. After the first day of October of the current year new members admitted to the Society shall pay one-quarter of the annual dues for the fiscal year. (April, 1941).

The following communication was received favorably by the House of Delegates at the meeting in Shreveport. The House instructed the Secretary-Treasurer to have a copy of this letter sent to the Governor, Lieutenant Governor, and Director of Institutions, and ordered that it be published in the Journal:

New Orleans
April 10, 1941

To the House of Delegates
Louisiana State Medical Society

Gentlemen:

At a recent Board Meeting of the Orleans Parish Medical Society the enclosed letter was presented for consideration.

Since this is a state matter it was motioned and passed that the communication be referred to the House of Delegates for their consideration, at their meeting in Shreveport, April 21-23.

Thanking you for any attention given this letter, we remain,

Yours very truly,
Signed: Edwin L. Zander, M. D.,
Secretary.

New Orleans
April 1, 1941

To the Officers
The Orleans Parish Medical Society

Gentlemen:

In the past months the medical profession of the State, and especially of the City, has been the recipient of many unfair remarks and unjust criticism, in the investigation and reports on various boards and institutions.

In taking cognizance of these remarks it is not our purpose to assume an egotistical attitude, nor act for any selfish motives, but to acquaint the public of the injustice of the statements made in these reports relative to the competency of our profession.

We strongly endorse any sincere effort for the complete depoliticalization of all public medical health services, which is not of a sporadic nature for political expediency.

We are emphatically in favor of any investigations of public institutions made by qualified and unbiased investigators with this object in view.

There may have been some administrative inefficiency or political subserviency in the past by a few members of our profession, who secured their appointment not by the recommendation of organized medicine, but from a political standpoint.

Physicians of our State have served, and do serve with honor, in the highest offices in local, national and international organizations and institutions. In a like manner, they have served in teaching positions, health, military and civic organizations and movements; and, it is natural that we resent the insinuations in these reports; that no member of our local profession is sufficiently qualified, capable or trained to aspire to positions of leadership and trust.

Many of our members have held with credit executive and administrative positions, or have been associated directly with these institutions for many years; surely these physicians are more competent to know the requirements of the institutions than outsiders, who appear in some cases to be novices.

It is a sad reflection on the part of the medical profession that physicians, who have demonstrated their capability and integrity in institutions, or other allied medical or civic organized movements, where many have served, without compensation, on various boards, committees or actively worked for numerous years, are told that not one is capable of leadership.

Again, the physician who has lived and practiced for years in his community, who has virtually been on the "firing line", has a more sympathetic and broader aspect of health problems, than a desk administrator.

For discussion, if our profession lacks sufficient training, the fault lies not in medical ranks, but in our political system which gives no assurance to the honest and capable physician that his position will not change with each administration. There is no incentive for our younger physicians to fit themselves for such positions, when they observe the fate of their older confrères.

Until such positions are given merit, and are administered for public welfare, and not as political pawns, we can expect no change.

In comparison: Governors, Mayors and our other highest officials, with much greater responsibilities, are selected with no special training for their office, and in many cases selected at random from the public with no special qualifications.

These investigations are usually made by persons with no knowledge as to the ability, training, or integrity of our local profession. They have no direct contact with medical organizations, nor do they seek it. The medical profession is judged without trial.

I would request that this letter be referred to the proper committee or proper person for consideration, with the hope that it will correct some of the injustice which has lately befallen our profession.

Fraternally yours,
Signed: Edwin L. Zander, M. D.

REPORT OF COMMITTEE ON MEDICAL DEFENSE

During the past year the Committee on Medical Defense has handled, through the attorney employed as counsel, three medical defense cases. The present status and action taken in reference to these cases is as follows:

A case involving a physician in Bogalusa, which was referred to the committee in March, 1939, is still pending and in January of this year the attorney advised us that the doctor was ill and requested that we secure statements from attending physicians, stating whether or not, in their opinion, this member was able to testify in court at the present time. These opinions were secured and forwarded to the attorney who has advised us that he has succeeded in getting the trial postponed for three months, at the end of which time the case will be tried without the doctor being present if he is still ill.

A case presented to the committee in July of last year, concerning a Lake Charles physician, is receiving the attention of the attorney, who has filed exceptions on behalf of the doctor.

In May, 1940, a case, brought against a New Orleans physician, was compromised, after authority was granted by our committee, thus closing the case.

A request for information, concerning procedure in securing medical defense through the State Society, was received from a Monroe physician in June, 1940. The doctor stated that he was threatened with a suit and although all necessary information was transmitted to him, the committee has not been contacted further by this member in this regard.

Attached to the original report is report of the Medical Defense Savings Account for 1940 and also a list of the securities held in the Trust Department of the Whitney National Bank for the Medical Defense Fund, as of December 31, 1940.

Respectfully submitted,
S. Chaillé Jamison, M. D.,
Chairman.

THE GOLF TOURNAMENT OF THE LOUISIANA STATE MEDICAL SOCIETY

Low Gross Score—81—Val H. Fuchs—New Orleans—DeLuxe Golf Bag; Runner Up Low Gross Score — 92 — J. V. Hendrick — Shreveport — All Leather Golf Bag.

Low Net Score—71—E. L. King—New Orleans—Cocktail Set; Runner Up Low Net Score—P. Graffagnino—New Orleans—Electric Razor.

Low Gross 6 B Holes—C. P. Rutledge—Shreveport—All Leather Carry All; Runner Up Low Gross 6 B Holes—R. F. Sharp—New Orleans—DeLuxe Toilet Set.

High Gross Score—115—H. A. Thomas—New Orleans—Desk Set; Runner Up High Gross Score—I. B. Rougon—Shreveport—Pr. Spaulding Golf Shoes.

High Net Score—91—W. B. Heidorn—Shreveport—Golf Umbrella; Runner Up High Net Score—88—M. C. Wiginton—Hammond—DeLuxe Tie.

High Gross 9 Holes—H. A. Folse—Donaldsonville—Waterproof Golf Hat.

Most Fives—L. A. Fortier—New Orleans—DeLuxe Lounging Jacket.

Most Sixes—S. W. Rozas—Opelousas—Golf Umbrella.

Most Sevens—J. T. O'Ferrall—New Orleans—Golf Umbrella.

The "also rans" Drs. J. H. Musser, E. H. Lawson and Howard Mahorner, all of New Orleans, who were too delicate or lacking in "intestinal fortitude" to brave the rain and finish playing the last nine holes were awarded by the committee, Six Golf Balls each for showing their colors.

TANGIPAHOA PARISH MEDICAL SOCIETY

The regular meeting of the Tangipahoa Parish Medical Society was called to order by the president in Hammond in May. There was a large attendance, and the meeting, though long, was enjoyed by all.

Dr. T. Spec Jones, of Baton Rouge, presented a very interesting and excellent paper on "Disease of the Thyroid Gland." The paper was enjoyed by everyone and the Society hopes to have Dr. Jones as a guest soon again.

Dr. R. F. Gates, head of the Florida Parishes Hospital, presented a report of six cases of ectopic pregnancy admitted recently to this institution. These case reports were so enthusiastically received by the members that Dr. Gates was asked to have more such cases for future meetings.

S. J. Cali, M. D., Sec.

CANCER: A CHALLENGE TO EVERY LOUISIANIAN

For five years the Louisiana Division of the Women's Field Army of the American Society for the Control of Cancer, has been doing valiant work in its educational program giving the lay public the true facts about cancer, its prevention and cure. In those parts of Louisiana where the Field Army has been well supported and developed through the fine cooperation of the medical profession and the women interested in cancer prevention, definitely favorable results have been obtained.

Unfortunately in relatively few parishes has the work been even fairly well developed. In too many parishes the work has been neglected or only half-heartedly supported. Primarily this appears to be due to a lack of interest on the part of the medical profession. Perhaps this is not surprising as most doctors see only one or two cases of cancer each year, and therefore the disease plays a minor role in their practice. But in the aggregate, cancer ranks second as a cause of death in Louisiana. If for no other reason it should be of the greatest interest to every doctor regardless of the number of cases he sees in his personal practice. Because of this lack of professional interest which may be more apparent than real, women who have keenly desired to further the educational program of the Women's Field Army have had their enthusiasm dulled and have lost interest in the movement. Thus, the program has lagged and has been ineffective in many parts of the state. This is an unfortunate situation as it tends to nullify the good work done in the better organized parishes. However, it is the writer's belief that it can be overcome if the enthusiastic support of the rank and file of the medical profession is once obtained.

For nearly ten years there has been much discussion of so-called "socialized medicine." In general the medical profession has been pictured in an unfavorable light in spite of the fact that general health conditions in this country have been the best in history and are constantly improving. In seeking an explanation for this paradox, it becomes evident that many lay leaders believe that the medical profession has shown a relatively high degree of inertia in developing preventive measures for many diseases. Thus they believe that in the past the knowledge possessed by the medical profession warranted more rapid progress in the control of such conditions as heart disease, maternal mortality, tuberculosis, and diphtheria, than was actually obtained. Because of the profession's failure to assume vigorous leadership in the campaigns to control these conditions, lay leaders assumed command. Today to a certain degree the same condition is true of cancer. They expect the leadership of the medical profession, but if it is not forthcoming they will seek other methods of obtaining the desired results. If they do so, the medical profession will necessarily lose prestige. Therefore as individuals and as societies, the profession should gladly and wholeheartedly assume the leadership in this campaign against cancer, not in a few parishes but in every one of the 64 parishes in Louisiana.

The control of cancer, like the control of many other diseases, is a community problem and requires the enthusiastic cooperation of the doctor in his professional capacity as well as a citizen with other lay citizens who desires such control. It is hoped that this year every doctor will take a personal interest in developing the educational program against cancer. They can do so by encouraging the women in their work, by aiding them in organizing lectures and becoming contributing members of the Women's Field Army and by encouraging their friends to enlist. For five years the work has been handicapped by inadequate funds. If every doctor, his wife and one friend enlisted, we would have half the funds considered necessary to develop fully the educational program of the W. F. A. If this were done we are confident the women of Louisiana would raise the remainder. It is in this way that Louisiana should commence to answer the challenge of cancer. Thus we shall begin to attain our goal, that of reducing cancer mortality in Louisiana by one-half to one-third.

The 1940-41 enlistment campaign closes June 15; checks may be addressed to the Louisiana Division, Women's Field Army, 1430 Tulane Avenue, New Orleans, La.

Edwin H. Lawson, M. D., Chairman,
Committee on Cancer.

U. S. CIVIL SERVICE EXAMINATIONS

Public health nurses at $2,000 a year and graduate nurses for general staff duty at $1,800 a year are needed by the Civil Service Commission. On account of the lack of nurses, applications, until further notice, will be received continuously.

SAVE YOUR RUBBER

A campaign is under way to save all rubber for the benefit of national defense. Hospital superintendents should make note of this and individual doctors might also be of help in salvaging rubber. A considerable amount of money can be realized from the sale of this rubber to scrap dealers, by whom it will be routed to commercial reclamation plants where it can be subsequently used. Rubber goods of any kind, worn rubber gloves, bottle stoppers, tubing, Asepto and ear bulbs, in fact any kind used in hospitals and in doctors' offices, should be saved.

1941 GRADUATE FORTNIGHT OF THE NEW YORK ACADEMY OF MEDICINE

The Graduate Fortnight of The New York Academy of Medicine will be held from October 13-24, 1941.

The purpose of the Fortnight is to make a complete and authoritative presentation of a subject of outstanding importance in the practice of medicine and surgery. The subject this year is "Cardiovascular Diseases Including Hypertension."

The Fortnight will present a carefully integrated program which will include morning panel discussions, afternoon clinics and clinical demonstrations at hospitals of New York City, evening addresses, and a scientific exhibit. The evening sessions at the Academy will be addressed by recognized authorities from leading medical centers of the United States and Canada. The comprehensive exhibit will include books and roentgenograms; pathologic and research material; clinical, laboratory, diagnostic and therapeutic methods. There will be demonstrations of exhibits and of fresh pathology.

LOUISIANA STATE CORONERS' ASSOCIATION

At the annual meeting held at the time of the Shreveport meeting of the State Society, Dr. J. B. Hall, of Bossier, was elected president; Dr. L. L. Ricks, of Independence, was re-elected secretary-treasurer; Dr. C. J. Barker, of Thibodaux, was elected first vice-president, and Dr. R. F. DeRouen, of New Iberia, second vice-president.

LOUISIANA STATE PEDIATRIC SOCIETY

At the annual meeting held in Shreveport, April 21, the following officers were elected: Dr. Julian Graubarth, of New Orleans, president; Dr. W. B. Worley, of Shreveport, vice-president; Dr. W. C. Rivenbark, of New Orleans, secretary-treasurer.

A full time intensive course in electrocardiography will be given August 18-30 by Dr. Louis N. Katz of the Cardiovascular Department of Michael Reese Hospital, Chicago. Fee for the course is one hundred dollars.

The Louisiana-Mississippi Ophthalmological and Otolaryngological Society met in April at the St. Charles Hotel, in New Orleans. An interesting program was presented by four essayists: Dr. L. V. Johnson, of the School of Medicine of Western Reserve University; Dr. Neal Owens, of New Orleans; Dr. George E. Shambaugh, Jr., of Chicago; Dr. A. C. Furstenberg, of the University of Michigan.

NEWS ITEMS

Any physician who is interested in partnership and association with two other physicians in a Texas town of 6,000 population with only two other doctors, can obtain information from the office of the Journal.

Large furniture factory four miles from Mobile, Alabama, desires physician between forty and forty-five years of age, well recommended, to live at plant. Salary will amount to about five thousand dollars a year with privilege of outside practice. For further information write Mr. F. W. Reimers, Hammond, La.

A physician in Paradis, Louisiana, desires to give up practice due to illness and wishes a doctor between forty and fifty years of age to assume his practice. Further information may be secured at the office of the State Medical Society.

Dr. Lucien A. LeDoux, Councilor from Louisiana of the Southern Medical Association, attended a meeting of the Executive Committee of the Council in St. Louis, Missouri, on May 13. The annual meeting of the Southern Medical Association will be held in St. Louis, November 11-15, with headquarters at the Hotel Jefferson.

Dr. Theodore A. Watters, Assistant Professor of Psychiatry and Neurology at Tulane University Medical School, has been elected to Fellowship in the American Psychiatric Association.

Dr. Henry W. E. Walther was elected President of the Louisiana Urological Society at their annual meeting in Shreveport on April 21, 1941.

Dr. Roland Young recently spent two weeks in Philadelphia and New York. While in the East he attended the Philadelphia County Post-Graduate Institute, the Neuropsychiatric Seminar of the Region of New York for Selective Service in New York City, the Pennsylvania Psychiatric Society first semi-annual Institutional Hospital meeting at the Allentown State Hospital and the Philadelphia

Psychiatric meeting at the College of Physicians and Surgeons.

Dr. W. H. Perkins, Professor of Preventive Medicine at Tulane, has been selected as President of the New Orleans Council of Social Agencies.

Dr. J. H. Musser delivered an oration on medicine at the meeting of the Illinois State Medical Society in Chicago, Tuesday, May 20. He also spoke at the meeting of the California State Medical Association on May 6.

At the first annual meeting of the Louisiana Association of Pathologists Dr. Edwin H. Lawson and Dr. Béla Halpert became members of the Council; Dr. William R. Mathews was elected president, Dr. Andrew V. Friedrichs, vice-president; and Dr. Albert E. Casey, secretary.

LOUISIANA MANEUVER AREA COUNCIL

The citizens of Louisiana have tackled the biggest job in the history of the State. They are to furnish a maneuver site of 15,000,000 acres for the United States Army War Games scheduled for next September. More than 500,000 men representing the greatest troop concentration in the annals of the War Department will participate in these maneuvers.

"Louisiana's Battlefield" embraces an area larger than Holland, Switzerland, Belgium or Denmark; 23,475 squares miles of 31 parishes will constitute the gigantic stage for the Army forces.

In setting the stage for this stupendous production, the Louisiana Maneuver Area Council, appointed by Governor Sam Jones, must gain clearance rights on this vast acreage from more than 100,000 landowners. However, within the first week of the Council's program, more than 10,000 Agreements were signed by property owners.

This response to the Army's request for a maneuver area sufficiently large to maneuver the greatest troop concentration in the country's history has been amazing. Maneuver Agreements are coming in to the Rents and Claims Office at Camp Beauregard in a flood of mail sacks that has necessitated the doubling of office personnel to handle the filing and clerical work involved.

This constant stream of signed agreements is an eloquent testimonial to the patriotism of the people in Louisiana and to their willing spirit to do their part for National Defense.

Not a section of the 15,000,000 acres will be overlooked. The organization of the Louisiana Maneuver Area Council reaches into every ward in the 31 parishes of the Maneuver Area. Ward Committees are responsible to their Parish Councils for a complete coverage of clearance rights so that the parish land block can be presented with clear title to the War Department.

Major Val Irion, State Maneuver Area Director, has launched a campaign to contact every state and local business, professional, fraternal and social organization to gain their cooperation with the State Council and in particular with the local Council in their home parish.

The parishes included in the Maneuver Area are: Winn, Grant, Ouachita, Caldwell, LaSalle, Richland, Franklin, Catahoula, Concordia, Caddo, Bossier, DeSoto, Webster, Red River, Lincoln, Jackson, Bienville, Vernon, Beauregard, Calcasieu, Allen, Jefferson Davis, Sabine, Natchitoches, Avoyelles, Evangeline, St. Landry, Acadia, Lafayette, St. Martin, Rapides.

The State Council's Executive Board comprises: Governor Sam Jones as Chairman and Brigadier General Raymond H. Fleming, Vice Chairman; Major Val Irion, State Maneuver Area Director, and Colonel R. B. Cole, Army Liaison Officer. Council members are Lucille May Grace, Director of the State Land Department; Harry D. Wilson, Director of the Department of Agriculture; John E. Coxe, Superintendent of Education; G. T. Owen, Director of the Department of Commerce and Industry; Brigadier General Steve Alford, Director of Public Safety; James D. Mercer, President State Police Jury Association; Theo. O. Hotard, President of the Louisiana Association of School Board Members and James B. Aswell, Director of Public Relations for the Executive Department of the State.

Louisiana is doing its part for the National Defense program.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has to report that for the week ending April there were 135 deaths in the City of New Orleans in contrast to the previous week when only 116 were reported. Of these deaths, 79 occurred in the white population and 56 in the negro; seven were in infants under the age of one year. There was a slight increase in the number of people who died in New Orleans in the following week which terminated April 19. Of the 142 deaths which took place, 85 were in the white and 57 in the negro division of the population. One explanation for the increase in deaths that took place this week lies in the fact that some 11 negro infant deaths were reported and nine white, as compared with the previous week when only two negro and five white infants died. There was a drop of ten in the total number of deaths for the week closing April 26. One hundred and thirty-two fatalities occurred, distributed 86 white and 46 negro. There was a reduction of five in the infant deaths this week. The number of deaths for the week which came to a close May 3 was approximately the same as that for the previous week. There were 81 white people dying in the city in this period and 54 negro, for a total of 135; 15 of which were in infants and 11 of these were negro children.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Department of Health for the sixteenth week of the year terminating April 19 showed a marked decrease in the number of cases of measles, from the 167 reported in the previous week to 70 this week. Additional diseases appearing in numbers greater than ten included 153 cases of syphilis, 68 of hookworm infestation, 64 of pneumonia, 45 of gonorrhea, 32 of pulmonary tuberculosis, 24 of cancer, 16 of chickenpox, 14 of influenza and 10 of whooping cough. A case of typhus fever was reported in Orleans Parish. For the seventeenth week of the year, ending April 26, there was a slight diminution in the incidence of measles which was reported as being 67 cases. The of syphilis showed a sharp jump to 246 cases, also gonorrhea with a jump to 69. Other double figure diseases included 36 cases of pneumonia, 29 of pulmonary tuberculosis, 14 each of cancer and influenza, and 10 each of chickenpox and malaria. Of the rare infectious diseases, a case of typhus fever and one of smallpox were discovered in New Orleans. The next week, which came to an end May 3, showed that the reportable diseases were following pretty much the five year average with nothing particularly outstanding. The report showed 152 cases of syphilis, 57 of gonorrhea, 47 of measles, 23 of pulmonary tuberculosis, 22 of septic sore throat, 21 of malaria, 17 of pneumonia, 14 of dysentery, 12 of hookworm infestation, and 11 of cancer. Two cases of typhus fever were reported, one arising in Rapides and one in Orleans Parish. For the week ending May 10, the following diseases were reported in figures greater than ten: 226 cases of syphilis, 43 of measles, 30 of whooping cough, 31 of pneumonia. 25 of gonorrhea, cancer and pulmonary tuberculosis 22 each, malaria 11 and hookworm 10. An imported case of poliomyelitis was listed by the City Board of Health of New Orleans.

DIRECTORY OF MEDICAL SPECIALISTS 1942 EDITION

Specialists eligible for listing in the forthcoming second edition of the Directory of Medical Specialists are urged to fill in and return promptly the questionnaires for biographic data now being mailed out by the publication office.

This Directory is the official publication of the Advisory Board for Medical Specialties, issued every two years, and listings are limited to those formally certified by any of the fifteen American Boards examining in the medical specialties. There is no charge for such listings.

The Directing Editor is Paul Titus, M. D., 1015 Highland Building, Pittsburgh, Pennsylvania, and the secretaries of the fifteen American Boards constitute the Editorial Board.

CHANGE OF TITLES

Beginning with the issue of April 19. 1941, the title of the current publication "Weekly Health Index" will be changed to "Weekly Mortality Index." At the same time, the title of the current publication "Weekly Accident Bulletin" will be changed to "Motor Vehicle Accident Deaths."

This change of titles does not in any way affect statistical comparability with preceding reports.

BOOK REVIEWS

The Diagnosis and Treatment of Diseases of the Esophagus: By Porter P. Vinson, B. S., M. A., M. D., D. Sc., F. A. C. P. Springfield, Charles C Thomas, 1940. Pp. 224; 98 figs. Price $4.00.

This subject is one which the endoscopist, surgeon, internist, gastroenterologist, and others have frequently neglected. The author in this brief monograph has selected an unusual topic which merits broad and complete treatment.

The style is readable and simple. The illustrations are interesting and well reproduced. The discussion of the diagnosis and treatment of esophageal disease is not as complete as could be desired. The author fails to mention the possibility of being unable to pass a string for dilatation in cases of cardiospasm. Discussion of esophageal varices is not accorded as much space as it warrants. It is by no means clear why an extremely brief, unsympathetic treatment of gastroscopy should be added to the topics covered.

This brief introduction to diseases of the esophagus makes us realize that the need exists for a more complete treatment of this subject.

Morris Shushan, M. D.

Human Nature, in the Light of Psychopathology: By Kurt Goldstein. Cambridge, Mass., Harvard University Press, 1940. Pp. 258. Price $2.50.

In this extremely interesting and very serious book, an eminent psychiatrist endeavors to present a systematic interpretation of all of the data, with reference to a conception of the nature of man, in the light of psychopathology; he makes an excellent job of it.

The volume is the outcome of the William James lectures, given at Harvard University in 1938 and 1939. It represents the author's examination of the fundamental problem of human personality and is based upon his experiences as a psychiatrist especially during the first World War.

The author believes that the readjustment required by those who have brain diseases, which must be set in motion by the therapist, is possible only on the basis of a study of the afflicted individual as a whole. He also thinks that one of the basic errors of the Freudian theory is that the tendencies observed in sick people are considered as the basic drives of the normal human being. He further points out that, even though the individual is primary to society, without question he is influenced to a very high degree by society and that one can realize his nature only within the group, and his life is determined by the habits, customs and institutions characteristic of the society in which he lives.

Doctor Goldstein is inclined to the opinion that the experiences of the last decade in Europe have awakened great doubt regarding the character of human nature. His book is a valuable contribution to psychiatric literature. His views will undoubtedly be of deep interest to many other readers than physicians and psychologists, in fact to all thoughtful persons who are groping toward a valid, efficient and dependable philosophy for these days of intolerance and suspicion, aggression and disintegration.

C. P. May, M. D.

Obstetrics in General Practice: By J. P. Greenhill, B. S., M. D., F. A. C. S. Chicago, Yearbook Publishers, Inc., 1940. Pp. 448. Price $3.50.

The author of this short volume of 448 pages has presented the essential features of the practice of obstetrics in an easily readable manner. He has made no attempt to reach the "specialist" with this volume and constantly has referred the reader to more detailed works when more detailed information is desirable. The volume is intended for general practitioners only and, for that reason, is brief, succinct and more or less dogmatic.

The subject matter is well divided into brief chapters, thirty-seven in all. The greater part of the material is devoted to the management of obstetric cases with proper emphasis upon possible complicating factors. Operative methods, although clearly portrayed, are placed in the background. There are numerous illustrations which aid in clarifying the descriptive passages.

A few minor criticisms can be made, chiefly about the brevity with which some subjects are handled, namely, endocrinology, cesarean section, and analgesia. Whereas cesarean section should be employed preferably by a trained obstetrician, many general practitioners nevertheless perform this operation and the preferred type of section should be described. The differentiation between ectopic pregnancy and acute salpingitis, a very important differential diagnosis, is somewhat briefly outlined. The author also states that by rectal examination in the first stage the physician can determine abnormalities—even to prolapse of the cord! While the progress of the presenting part can be easily determined in this manner, differentiation of position and obscure presentations require much more skill and experience in rectal examination than most general practitioners usually possess.

The volume is an excellent quick reference for the salient points in obstetrical management. It fulfills the author's purpose very well.

John C. Weed, M. D.

Fractures and Dislocations for Practitioners: By Edwin Oscar Geckeler, M. D. Baltimore, The Williams & Wilkins Company, 1940. Pp. 314. Price $4.00.

As a book designed for the use of practitioners and students, this volume has some rather good points to furnish an impression and a guide towards emergency care and initiation of treatment. As a practical guide, it lies midway between a manual of fractures and a full text on the subject. It is impossible to cover the compensatory phase, the physical therapy and convalescent care in a book as brief as this. For example, the section on simple fractures of the hand is much too brief considering the degree of disability resulting from fractures in this area when inadequately treated. As a means of introduction to the subject the book is adequate, but one using it as a guide for the treatment of a specific fracture should have the opportunity of a more complete study, particularly if the fracture presents any complicating features.

F. J. Cox, M. D.

Modern Medical Therapy in General Practice: Edited by David Preswick Barr, A. B., M. D., LL. D. Baltimore, Williams and Wilkins Company, 1940. Pp. 3661. Price $35.00.

This work is of such scope that it is really an encyclopedia of treatment.

The distinguished editor is so well known that any work bearing his name would naturally command the respect of the medical world. The one hundred and six contributions have been selected with unusual discrimination and many of the leading names in medicine are found "among those present."

The first 750 pages present general therapy, including such subjects as psychotherapy, the use of drugs, vaccines and sera, dietotherapy, physiotherapy, climatotherapy, and occupational therapy. These subjects are well presented and include a wealth of material.

The index covers 99 pages. The remaining nearly 3,000 pages are given to a consideration of diseases. The text is not confined strictly to therapy, but there is always an introductory build up that adds much to the value of the work. For example, in the section on pneumonia, the first ten and a half pages include a discussion of history, incidence, classification, etiology, epidemiology, pathology, symptoms, laboratory data, diagnosis and prognosis. Thirty-four pages are devoted to treatment proper. This is followed by 131 references to papers that have been quoted in the text.

The book is well printed. The type is large and clear and the style of composition favors easy and comfortable reading. The divisions of the text by subtitles facilitates ready reference.

Altogether it is a most excellent contribution to medical literature and a valuable addition to any physician's library.

O. W. Bethea, M. D.

The Medical History of Contraception: By Norman E. Himes, Ph. D. Baltimore, Williams and Wilkins Co., 1936. Pp. 521. Price $2.50.

This excellent book represents the adaptation of medico-historical technic to a new field. It is an original and thorough piece of research and is recommended to all who are interested in either medical history or in contraception in its medical, sociologic, psychologic or historical aspects, or in population problems in general.

The book is divided into six major sections, each being followed by an excellent summary of the contents of the particular section. Section one deals with Contraceptive Technic before the Dawn of Written History; Section two, Contraceptive Technic in Antiquity (Western World); Section three, Contraceptive Technic in Eastern Cultures; Section four, Technic in the West during the Middle Ages and Early Modern Times; Section five, Democratization of Technic since 1800 in England and the United States; Section six, Democratization and Its Future Effects.

The first five sections constitute a thorough, interesting and excellent historical survey and no one can quarrel with it. Many may quarrel with certain of the generalizations, philosophic comments, and interpretations found in the last section wherein the author is ruled occasionally by heart rather than head.

There is an excellent bibliography appended.

The author is to be commended on a splendid piece of work, and the National Committee on Maternal Health is to be complimented on supporting this work, making possible its publication, and making it available at such a reasonable price.

B. Bernard Weinstein, M. D.

Growing Out of Babyhood: By Williams S. Sadler, M. D., F. A. P. A., and Lena K. Sadler, M. D., F. A. C. S. New York, Funk & Wagnalls Co., 1940. Pp. 350. Price $2.50.

This volume is another answer to the mother's every-day problems. It is easily understandable and goes into detail in the handling of all the ordinary problems of childhood. If this were the only book edited recently on child guidance to parents and teachers, the reviewer would feel it fitted into many homes. There have been, however, a number of books of this nature within the past two years, which serve the same purpose. The authority of the two authors will recommend this volume.

Suzanne Schaefer, M. D.

The Neuroses in War: By Several Authors under the Editorship of Manuel Miller, M. A. (Cantab.), M. R. C. P., D. P. M. (Cambs.) New York, The Macmillan Co., 1940. Pp. 250. Price $2.50.

This admirable and overwhelmingly authoritative book is a clear and concise critical evaluation of the present status of the neuroses in war and it is a valuable aid to the understanding and treatment of such conditions. It is indisputable evidence that medical science has advanced with such rapidity that many of us are sometimes dazzled by the medicine of today and that psychiatry has reached a high level of development.

During the first World War the contributors had ample opportunity to study neurotic casualties of warfare on a very large scale. In the interval of peace they have had time to coordinate the material collected and to formulate and publish their deductions in this volume.

Human nature has not changed. The conclusions are as valid as ever and the need for them is infinitely greater. The terrors and privations of war are no longer restricted to those in active service. Women and children, factory workers and farmers, city dwellers and those who reside in remote villages are affected, the problems of war hysteria have increased proportionately and with them the need for adequate preparation.

The treatise is the work of eleven collaborators and consists mainly of eleven sections. Of special interest are the chapters on "The Differential Diagnosis of the Psychoneuroses of War"; "Treatment by Suggestion and Hypno-Analysis"; "Technic of Other Psychotherapeutic Methods" and "The War of Nerves: Civilian Reaction, Morale and Prophylaxis." In them are exhibited proverbial resourcefulness and ingenuity.

Intense interest in war, increased as it is with the wide publicity given to all details, is ever adding to the confusion in the public mind and it is very likely that the influence of this remarkably fine contribution may have a direct bearing on the practice of medicine in your community.

C. P. May, M. D.

Poems of a Doctor: By Edward Lovelle Stewart, M. D. Kansas City, Mo., Brown-White Co., 1940. Pp. 157; por.

Whenever one finds a novel or a book of verse by a physician one cannot but recall Moynihan's delightful address on "Medical Truants"—physicians who deserted medicine to the enrichment of other arts. The names of Ibsen, Schiller, Goldsmith and Keats come to mind. Then one recalls the busy men who remained true to medicine the while writing verse, and occasionally verse of such quality that it may be called poetry. The names of Weir Mitchell, Holmes, Armstrong, Ross, Jenner, Hans Much, Tinoser, and McCrae are recalled.

This book of verse by Doctor Stewart is divided into four collections: College Poems, Miscellaneous Poems, Family Poems, and Forty Years Ago. The last named divisions is an interesting series of verse—letters written to an old friend over a period of years.

While this volume will make a poor shelf-mate for Holmes or Mitchell it contains many interesting verses and is recommended to those interested in the lyric productivity of physicians.

B. Bernard Weinstein, M. D.

Clinical Urology: By Oswald Swinney Lowsley and Thomas J. Kirwin. Baltimore, Williams and Wilkins Co., 1940. 2 v. illus. Price $10.00.

Clinical Urology is composed of two volumes. The first consists of chapters on history-taking and physical examination, examination of the urine, tests of renal function, instrumental examination, roentgenography of the genito-urinary tract, anesthesia in urology, gonorrhea in the male, radium and roentgen ray therapy of the genito-urinary tract, and chapters on the penis, scrotum, and scrotal contents, vas deferens, seminal vesicle and ejaculatory duct, female genitalia, male urethra, Cowper's glands, female urethra and prostate gland. The second volume covers the bladder, ureter, and kidney.

The chapters are so arranged that each urogenital organ is taken up in its anatomic sequence from without inward, and a discussion of the embryology, anatomy, anomaly, physiology, injury, disease, operative and non-operative approach to each is given.

This arrangement enables the authors to cover each subject completely, and gives the reader an opportunity to make a comprehensive study of urology. The subject matter is so phrased that it lends to easy reading without being superfluous, and enables one not versed in urology to follow the theme with ease.

The detailed information contained in original articles, or in volumes limited to certain diseases in urology, is not found in this work; but this is to be expected, for such comprehensive information would be impractical when the entire subject of urology is discussed.

It is true that references are made to outstanding contributions in the literature, and the opinions of various authorities are quoted, but in most instances the opinions rendered are those of the authors. The list of references at the end of each subject can be considered selective, if not extensive.

The operative technics are voluminous and beautifully illustrated. They represent the procedures practiced, and in some instances those originated by the authors. The roentgenologic illustrations are exceptionally clear and representative.

From the standpoint of the student, the volumes lack extensive statistical data. In addition, there are no plates on embryology, and no anatomic charts or illustrations, excepting those representing disease processes and surgical procedures. Advanced students interested in pathology will be disappointed in the scarcity of microphotographs.

The plan used in writing the volumes is excellent. In spite of the vast material encompassed, it is comprehensive, and surprisingly condensed. *Clinical Urology* is recommended to anyone interested in this subject.

John G. Menville, M. D.

A Guide to Human Parasitology: By D. B. Blacklock, M. D. (Edin.), D. P. H. (London), D. T. M. (Liver.), and T. Southwell, D. Sc., Ph. D. Baltimore, Williams and Wilkins Co., 1940. Pp. 259. Price $4.00.

Publication of the fourth edition of this guide provides evidence of its usefulness to the medical practitioner and student. The volume contains introductory chapters on the scope of the field, the essential equipment and useful technics for the examination of blood and feces for parasitic objects. *Ad seriatim* there are then briefly considered the spirochetes (Group Spirochaetacea), the parasitic amebae (Rhizopoda), the hemoflagellates and intestinal flagellates (Mastigophora), the malaria parasites and their relatives (Sporozoa), *Balantidium coli* (Ciliata), the tapeworms (Cestoda), flukes (Trematoda), and roundworms (Nematoda). There are numerous supplementary diagrams, synoptic tables and useful information on postmortem examination, geographic distribution of parasites, sources of human infection, organs of the human body harboring the parasites, diagnostic keys, useful chemical reagents and apparatus, and a short list of "larger textbooks."

Each parasitic organism presented is considered under the headings of "geographic distribution", "habitat" in the body, "morphologic characters", "life history", "pathogenicity" and "diagnosis." The guide is preclinical in its perspective, since it does not present information on symptomatology, treatment, prognosis or prevention.

On the whole the information is sound and the terminology modern. However, the newer American technics for the recovery and diagnosis of parasitic objects in feces are not mentioned, the names employed for spirochetes (p. 32) are archaic, and several outmoded names of helminths have been noted, including "*Dibothriocephalus latus*" for the broad fish tapeworm (pp. 95, 111, 199) and *Taenia granulosa* p. (120, 200) for the hydatid worm.

The volume is clearly printed, well illustrated with line drawings and two color plates, has a good subject index and has extremely few typographic errors.

Ernest Carroll Faust, Ph. D.

Handbook of Bacteriology: By Joseph Warwick Bigger. Baltimore, Williams and Wilkins Company, 1939. Pp. 466. Price $4.25.

This short handbook should be useful to students of bacteriology, for it covers the essentials of the subject. Larger texts should be consulted for detailed material. Some of the colored plates in the book appear to be exaggerated but this may serve to emphasize their meanings.

WILLIAM W. TRIBBY, M. D.

Diseases of the Digestive System: Edited by Sidney A. Portis, B. S., M. D., F. A. C. P. Philadelphia, Lea and Febiger, 1941. Pp. 952. Price $10.00.

Fifty prominent authorities have collaborated in the presentation of this study covering gastroenterology in a single volume. There are 43 chapters, many of which approach monographic proportions and which, in many instances, are actually condensations of a text the particular contributor has written. Scholarly in every respect, thorough in detail with voluminous bibliographies appended to each chapter, it stands as a source of information unrivaled in its field.

Introductory chapters consist of an interesting historical survey and an excellent review of anatomy and physiology which are the foundation for the clinical aspects which are scientifically handled with regard to etiology, pathology and diagnosis. Gastrointestinal manifestations due to psychiatric, neurologic and cardiovascular-renal disease, as well as those related to metabolism and allergy, are given as adequate attention as are the more specific entities of gastroenterology. Therapeutic considerations are excellent and include the medical and surgical advances which only reached the current literature in recent months.

Not wishing to omit praise for each of the authors the reviewer nevertheless feels forced to bring attention to the elaborate review of physiology by Necheles, Ivy and McSwiney, the masterful interpretation of gastrointestinal pain by Chester Jones, and the condensed parasitology by Faust and Craig. There is some disappointment in that a peritoneoscopist was not asked to add to the excellent endoscopic information offered by Porter Vinson and Rudolph Schindler. Throughout the volume the careful editing of Sidney Portis is evidenced in his footnotes but it is undoubtedly true that little criticism or addition could be added to the excellent work of each contributor.

This is the outstanding study without any true inadequacy which is a thoroughly satisfying text for student and teacher, a sufficiently scientific treatise to please the most exacting specialist and yet it is so practical that it is a valuable aid to the practitioner.

GORDON MCHARDY, M. D.

Test Tubes and Dragon Scales: By George C. Basil, M. D., in collaboration with Elizabeth Foreman Lewis. Philadelphia, The John C. Winston Co., 1940. Pp. 316. Price $2.50.

This is not a textbook or scientific treatise on medicine but a delightfully written account of the conflict between modern medicine and the philosophy and superstition of inland China a decade ago, as viewed through the eyes of a young American physician who spent a few eventful years as superintendent of the "Syracuse-in-China" Hospital at Chungking. The optimism of the West came up against an almost impregnable wall of custom, habit and inertia. To present the Chinese point of view a few of the chapter titles are taken from ancient proverbs, as "even the gods find it difficult to distinguish between pills, powder and plasters", "to become a famous doctor, a man needs to know little" and "only the wealthy can afford the law courts." Even though the Western physician's zeal again and again met with stolid resistance, he gradually gained the respect and friendship of the wealthy and poor alike among whom he lived and to whom he ministered. His return to America was dictated by the inability of his wife to become acclimatized to the enervating environment of humid mid-China (a "witch's caldron of heat and murk and filth"), and not by his own desire to leave a people to whom he became devoted.

The volume is generously illustrated with marginal sketches made in China by Raymond Creekmore. These provide faithful character and color to the pages.

ERNEST CARROLL FAUST, PH. D.

PUBLICATIONS RECEIVED

Paul B. Hoeber, Inc., New York City: Brucellosis (Undulant Fever), Clinical and Subclinical, by Harold J. Harris, M. D. A Manual of Allergy, by Milton B. Cohen, M. D.

Lea & Febiger, Philadelphia: Arthritis and Allied Conditions, by Bernard I. Comroe, A. B., M. D., F. A. C. P.

J. B. Lippincott Company, Philadelphia: Essentials of Dermatology, by Norman Tobias, M. D.

The C. V. Mosby Company, St. Louis: The Mask of Sanity, by Hervey Cleckley, B. S., B. A. (Oxon.), M. D.

W. B. Saunders Company, Philadelphia: Physical Medicine, by Frank H. Krusen, M. D., F. A. C. P. Textbook of Pediatrics, by J. P. Crozer Griffith, M. D., Ph. D., and A. Graeme Mitchell, M. D.

Charles C Thomas, Springfield: The Pharmacology of Anesthetic Drugs, by John Adriani, M. D.

The Torch Press, Cedar Rapids, Iowa: The Doctor Takes a Holiday, by Mary McKibbin-Harper, M. D.

UNIVERSITY OF CALIFORNIA
MEDICAL CENTER LIBRARY

THIS BOOK IS DUE ON THE LAST DATE STAMPED BELOW

Books not returned on time are subject to a fine of 50c per volume after the third day overdue, increasing to $1.00 per volume after the sixth day. Books not in demand may be renewed if application is made before expiration of loan period.

Nov3'41

Mar 11 '45

Apr 3 '47

Mar27 48

JUN 5 1951

3m-1,'41(767s)

v.93
1940-
1941
New Orleans medical and surg
ical journal.
54273

Nov 3 '41 NOV 3 - 194
Mar 11 '43 MAR 15 1943
Rector Apr 3 '47 APR 4 - 1947
Mar 27 48 MAR 25 1948
Silen
E.T. Clark JUN 5 1951 JUN 2 195

54273